

ASSESSMENT OF THE
EFFECTIVENESS OF PUBLIC
EXPENDITURE ON COAL
INDUSTRY
RESTRUCTURING





The study “Assessment of the Effectiveness of Public Expenditure on Coal Industry Restructuring” was carried out in September-November 2020 by an expert team of DiXi Group NGO with the support of Heinrich Boell Foundation, Kyiv Office, Ukraine as part of the project “Budgetary Aspects of Public Policy on the Closure of Coal Mines”.

The purpose of the study is to impartially analyze the effectiveness of state budget expenditures in 2015-2020 to restructure coal companies and to draw public and key stakeholders' attention to the coal industry's dependence on government subsidies to increase the social acceptability of coal phase-out and make the case for the transition to green energy.

The information in this publication is an analysis of generalized public data and its interpretation by the authors and does not necessarily reflect the official position of Heinrich Boell Foundation and the German government.

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LIST OF ABBREVIATIONS

GDP – gross domestic product

RES – renewable energy sources

ECSC – European Coal and Steel Community

IMF – International Monetary Fund

NDC – Nationally Determined Contribution

UCT – uncontrolled territories: individual areas of Donetsk and Luhansk oblasts which are temporarily occupied

UN – United Nations

OECD – Organization for Economic Cooperation and Development

UNFCCC – United Nations Framework Convention on Climate Change

NSDC – National Security and Defense Council of Ukraine

TPP – thermal power plant

CHP – combined heat and power plant

EXECUTIVE SUMMARY

This study carried out by DiXi Group experts with the support of Heinrich Boell Foundation during September-November 2020 examines budget programmes under which funds were allocated during 2015-2020 to restructure and/or support Ukraine's coal industry.

The study group has examined the structure of the public sector of Ukraine's coal mining industry, analyzed the budget planning of expenditures for the coal industry, and assessed the effectiveness of the budget support programmes for the coal industry for 2015-2020 based on the Public Expenditure Review methodology, which is used by the World Bank, OECD, IMF to assess the effectiveness of public expenditure in various sectors of the economy.

During analysis, the experts relied on open sources (data from the State Statistics Service, the Ministry of Energy, other authorities), as well as studies, articles and other analytical products published in Ukraine and abroad.

The Ukrainian coal industry has been **stagnating steadily since independence**. In 1991, Ukraine had 276 state-owned mines that produced 193 million tons of coal. At the end of 2020 the number of mines and accordingly the number of employees in the state coal mining sector of Ukraine has decreased and consists of 33 state-owned and leased enterprises, which employ 35 thousand people.

In 2019, coal production decreased to 31,22 million tons, including steam coal to 24,9 million tons (of which only 2,72 million tons were produced by state-owned mines). The share of coal in total primary energy supply has declined from 33% in 1990 to 29.6% in 2018.

Analysis of the documents that defined the basis of the state policy aimed at restructuring the coal industry shows that the **implementation of this policy was characterized by inconsistency, vagueness in setting goals, lack of response to the identified systemic weaknesses in the restructuring of the industry**. In particular, it is a lack of appropriate funding for modernization activities, retraining of workers and the creation of alternative jobs, rehabilitation of mining sites, etc. At the same time, the absolute majority of the adopted policy documents related to the reform of the coal industry have not been implemented (partially or fully).

The authors concluded that the **amounts and directions of budget funding for the coal industry during 2015-2019 were not fully consistent with the programme and strategic documents in effect at the time**. The projected goals set by the concepts, strategies, and state programmes were regularly not achieved. The bulk of the restructuring funds were used to cover arrears of miners' wages, for which the budget expenditures were adjusted by reducing the investment component. This approach does not comply with the principles of comprehensive budget planning and cannot ensure sustainable development of the industry in accordance with the planned parameters.

The results of the implementation of budget programmes (in particular the programme "Restructuring of the Coal Industry") serve as a clear and unambiguous indicator of the effectiveness of achieving the goals proclaimed in the concepts and action plans to reform the industry. Obviously, the lack of funding for development or its actual reduction during the budget period led to the further decline of state-owned coal enterprises, and also limited the possibilities for break-even coal production in the future. This clearly contradicts the goals outlined in each of the reviewed concepts, and at the same time calls into question the expediency of further financing of the coal industry without regard to the established goals of its development and clear quantitative indicators of their achievement.

The government has not monitored the effectiveness of budget spending in past periods, and therefore the purpose of spending in the coal industry has hardly changed from year to year. Even a cursory analysis of the state budget in recent years shows that the government could not accurately determine the amount of money needed to compensate for the difference between the cost of production and the price of coal sales.

The scale of the problems in the industry was clearly not commensurate with the level of measures that the government took to overcome them. This is especially true for financing the modernization of enterprises, the retraining of workers, job creation, and the rehabilitation of mining sites. The only aspect of the reform where the government has made progress is in reducing the number of coal enterprises. Recently, however, they have been closed mainly due to their inability to carry out further economic activities or because the government lost control over a part of Ukraine.

Forecasting and planning of the industry development was at an improper level: the government constantly set inflated and unjustified targets, the achievement of which required a level of funding that was beyond the means of the Ukrainian budget. Although certain documents did contain lists of measures to be implemented and lists of unprofitable enterprises to be shut down, this did not ensure that the tasks of restructuring the coal industry in terms of increasing coal production, reducing government subsidies and ensuring profitability were achieved.

There was no prioritization of expenditures within the industry. Back in the early 2000s, statistics showed that without a significant increase in the investment component, it was impossible to achieve at least a stabilization of production volumes at the level of the corresponding year. However, the government continued on a conceptual level to set maximum goals to increase production and minimize the cost of production in the absence of funding that would match the scale of the goals.

When developing programmes, strategies and concepts for the coal industry, **the government and parliament did not rely on the financial capabilities of the state budget** to ensure the implementation of programmes to reform the coal industry, but on certain potentially achievable indicators of coal production for domestic consumption and exports. And the base value for such indicators was the volume of coal production in 1990, not the volume of production, which should meet the demand and ensure the energy security of Ukraine, subject to the allocation of budget financing in economically justified amounts.

Evidence of the failure of the state policy of reform and development of the coal industry is not even in the unsatisfactory economic performance, but in the **absence of a full-fledged coal market in Ukraine.** After all, it was the transfer of coal products to market pricing that was proclaimed as one of the goals of the industry reform, beginning in 1996. All strategic and conceptual government documents linked overcoming the crisis phenomena in the industry to the emergence of the coal market.

The government's response to the identified systemic weaknesses in the restructuring of the industry at the level of budget planning was **little noticeable.** Insufficient attention has been given at the strategic level to the issues of equitable transition in terms of funding programmes for social and professional adaptation of workers at coal mines that are being liquidated, development of private initiatives in mining communities, and rehabilitation of areas where coal was mined.

In fact, **the government has chosen the path of gradual self-destruction of the industry** due to the exhaustion of residual resources and refusal to invest in stabilizing the volumes of production. It is clear that without a change in approaches to defining realistic goals and financing them, the vast majority of currently operating loss-making enterprises will close in the near future, and those few conditionally profitable mines that are still in state ownership will either be privatized or shut down a little later.

The results of the assessment revealed a **weak correlation between the amount of financial state support for the coal industry during 2015-2019 and the performance indicators chosen according to the methodology of this study,** and offered a number of recommendations for public authorities of Ukraine. At the same time, the success in implementing most of the recommendations depends on interagency cooperation between central executive bodies at all stages of policy implementation.

Recommendations:

► in the field of sustainable development

- ▶ at the stage of finalization **to align the draft Concept of Coal Industry Reform with the climate commitments of Ukraine under the Paris Agreement**, and to synchronize economic indicators of the industry with the provisions of other relevant draft public policy documents (the Concept of "Green" Energy Transition of Ukraine by 2050, the second NDC and National Programme of Transformation of Coal Regions of Ukraine by 2027), which are at the stage of preparation;
- ▶ **take into account the results of long-term modeling of energy development in Ukraine, carried out in preparation of the second NDC and an integrated plan to combat climate change and energy development until 2030**, in particular to adjust the actions given realistic scenarios for the development of demand for coal products, when finalizing the draft Concept;
- ▶ develop a **comprehensive programme for the modernization of coal enterprises**, guaranteeing a sufficient amount of capital investment for the technical re-equipment of enterprises and increasing the level of occupational safety. Obviously, the first to take part in this programme should be those few conditionally profitable enterprises that are state-owned and can be brought to a certain level of profitability at the expense of lower costs;

► in the socio-economic sphere:

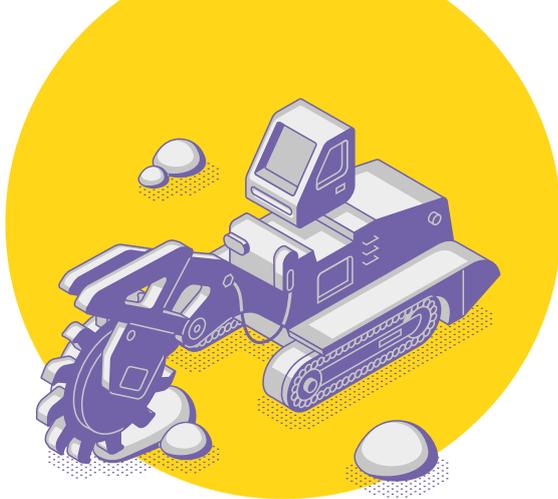
- ▶ Considering the monoprofile nature of some coal-mining towns during preparation of the National Programme of Transformation of Coal Regions of Ukraine by 2027 it is necessary to **provide for development of separate plans of measures of social and economic support of specific towns** which would stipulate stable investments into creation and development of small and medium enterprises, economic education of population, professional retraining courses, reprofiling of some facilities of former coal-mining enterprises etc.;
- ▶ ensure **coordination of measures to reform the coal industry with the oblast state administrations** of Volyn, Dnipropetrovsk, Donetsk, Luhansk and Lviv oblasts to coordinate the relevant oblast programmes for socio-economic development with the plans of the government;
- ▶ ensure **constant communication with the communities where coal mining, processing, and consumption occur or have occurred**, in order to coordinate activities aimed at the socio-economic development and rehabilitation of the territories.

► in the field of budget planning:

- ▶ switch to **medium-term (5-7 years) planning of budget expenditures on the coal industry** already when preparing proposals for the state budget for 2022;
- ▶ when planning expenditures on measures to modernize coal enterprises, **approve a system of control indicators** (which would take into account not only the economic aspect of industry development, but also the climatic and social ones) of the effectiveness of budget programmes, based on which the decision to continue or stop funding specific budget programmes will be made;
- ▶ establish a **threshold value (part) of expenditures on capital investments in the structure of budget financing of the industry, which are not subject to reallocation to subsidies**, as well as a pilot period during which the state undertakes to finance the modernization of coal industry enterprises in order to bring them to profitability. Based on the results of the pilot period, the government will decide whether to extend or change the approaches to funding based on an analysis of the state of achievement of the target indicators of industry development;
- ▶ during the preparation (adjustment) of budget requests **avoid the approach of combining expenditures of different functional areas, but to comply with the programme-targeted method**

and the requirements of the Budget Code on economic classification of expenditures, in particular clearly separate programmes in the coal sector by areas: subsidies (covering losses, wage arrears, debts for consumed electricity), investment in the development of individual state-owned enterprises, mine liquidation, mine rescue and environmental protection measures and other areas of public policy implementation;

- ▶ adopt a resolution of the Cabinet of Ministers of Ukraine "On Approval of the Criteria for Assessing the Admissibility of State Aid to Economic Entities in the Coal Industry" and bring state aid programmes into compliance with it.



1. COAL INDUSTRY OF UKRAINE. PUBLIC SECTOR

1.1. Key trends and approaches to the development of the coal industry in Ukraine and countries of the world

► Climate change and coal phase-out in the world

Coal has become one of the world's major energy minerals due to its considerable reserves, availability in many countries, and relative ease and cheapness of extraction in the past. It is because of this that coal has become the most consumed natural energy resource.

However, the impact of coal mining on the environment is proven, since despite significant efforts by governments and international organizations, it still causes 40% of all carbon dioxide emissions¹.

The coal industry employs 8 million workers in total, with annual revenues from coal trade in 2019 reaching \$824 billion². In 2019, the world's carbon dioxide emissions did not rise for the first time in three years, stopping at 33,3 billion tons, despite the growth of the global economy. The biggest reductions in emissions were in the EU (160 million tons, or 5%) and the USA (140 million tons, or 2.9%). Since its peak in 2000, CO₂ emissions in the USA have fallen by 1 billion tons. Japan, too, has shown significant emission reductions since 2009 (4%)³.

This is how the developed countries of the world respond to global warming and take advantage of favorable trends in global energy markets in an effort to slow the further rise in the planet's average temperature.

The results of global climate change on the planet over the past 30 years have prompted most of the world's governments to reduce human impact on the environment. The countries have signed a number of international agreements to coordinate joint efforts. In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) was agreed upon by 197 countries⁴. As a follow-up to the 1997 convention, 192 countries of the world signed the Kyoto Protocol, the first international instrument that

1 Jakob M., Steckel JC, Jotzo F. and others. The future of coal in a carbon-constrained climate. URL: <https://www.nature.com/articles/s41558-020-0866-1>

2 Market value of coal mining worldwide from 2010 to 2020. URL: <https://www.statista.com/statistics/1137437/coal-mining-market-size-worldwide/>; Global Coal Mining Industry - Market Research Report. URL: <https://www.ibisworld.com/global/market-research-reports/global-coal-mining-industry/>

3 Global carbon dioxide emissions remained stable in 2019 for the first time in 3 years – IEA. URL: <http://reform.energy/news/mirovoy-uroven-vybrosov-uglekislogo-gaza-ostalsya-stabilnym-v-2019-godu-vpervye-za-3-goda-mea-13657>

4 What is the United Nations Framework Convention on Climate Change? URL: <https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change>

obliged countries to reduce harmful emissions into the atmosphere⁵.

With the signing of the **2015 Paris Agreement**⁶, the countries of the world pledged to take measures to prevent global temperature from rising more than 2°C above pre-industrial levels.

In 2017, during the Climate Conference in Bonn, Germany, **Powering Past Coal Alliance (PPCA)**⁷ was established, which aims to end the permanent consumption of coal in OECD countries by 2030.

At the end of 2019, European Commission President Ursula von der Leyen introduced the **European Green Deal** initiative, the culmination of international cooperation to combat climate change⁸. This strategic initiative calls for joint elaboration of environmental, energy, and economic⁹ policies to achieve a climate-neutral economy by 2050¹⁰. The European Green Deal is designed to define EU policy for the coming years in areas such as climate, energy, biodiversity, industrial policy, and trade. The main goal of the initiative is a sustainable **"green"** transition of Europe to a climate-neutral continent by 2050¹¹.

Great Britain was one of the first in the world to resort to large-scale closure of coal mines. Employment in the coal industry in the country peaked in 1920 (more than 1,2 million people); since then, the number of employees has steadily declined, reaching 6,000 in 2010¹². In 2016, there were about 1,000 miners left in Great Britain, who produced 1 million tons of coal per year¹³. As early as 2018, the country began recording 24-hour intervals during which coal was burned, and over the next decade, the country will stop mining coal and using it to generate electricity.

Relatively recently, Germany has begun to successfully implement its government programme to phase out coal. Since 1958, following the abolition of regulated coal prices in the ECSC and a further sharp drop in product prices, employment and coal production in the country have been declining. In 2007, under pressure from the EU, Germany stopped allocating subsidies to support the industry, estimated at between 289 and 331 billion euros¹⁴ in 1950-2008. In the first half of 2018, the share of renewables in energy consumption reached 38.2%, coming out on top¹⁵. As of 2018, Germany's coal industry employs 20,000 workers¹⁶.

At the same time, the arguments of environmentalists began to be taken into account fairly recently, when the fate of the coal industry in many countries was already determined by economic factors. The coal industries of France, Belgium, the Netherlands, Luxembourg and several other countries are in decline precisely for economic reasons¹⁷.

5 Kyoto Protocol - Targets for the first commitment period. URL: <https://unfccc.int/process-and-meetings/the-kyoto-protocol/what-is-the-kyoto-protocol/kyoto-protocol-targets-for-the-first-commitment-period>

6 Paris Agreement. Paris: United Nations Framework Convention on Climate Change. URL: http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

7 Powering Past Coal Alliance. Working towards the Global Phase-out of Unabated Coal Power. Powering Past Coal Alliance (PPCA). 2017. URL: <https://poweringpastcoal.org>

8 European Commission, Energy, Climate change, Environment, Climate Action, EU Action, International action on climate change, Climate negotiations. URL: https://ec.europa.eu/clima/policies/international/negotiations/paris_en

9 New EU policy on the "circular" economy: opportunities for Ukraine. URL: <http://dixigroup.org/analytic/nova-polityka-ies-z-tsyrkuliarnoi-ekonomiky-mozhlyvosti-dlia-ukrainy/>

10 The initiative is based on the Paris Climate Agreement and sustainable development goals. In general, the strategy of the European Green Deal includes about 50 policy actions, including legislatively enshrined reduction of emissions to zero by 2050, the introduction of taxes on imports of not "clean" energy, allocation of about 100 million euros to just transition, restrictions on signing free trade agreements with countries that have not signed the Paris Climate Agreement. Ukraine declares its intentions to join the common European policy too. (URL: <https://www.eurointegration.com.ua/experts/2020/09/16/7114336/>)

11 European Green Deal: Opportunities and Threats for Ukraine. URL: <http://dixigroup.org/storage/files/2020-05-26/european-green-dealwebfinal.pdf>

12 Pettinger T. The decline of the UK Coal Industry. 11 December 2016. URL: <https://www.economicshelp.org/blog/6498/uncategorized/the-decline-of-the-uk-coal-industry/>

13 Managing Coal Mine Closure. Achieving a Just Transition for All. November 2018. URL: <https://openknowledge.worldbank.org/handle/10986/31020>

14 Ibid.

15 Snapshot of Ukraine's Energy Sector Institutions, Governance and Policy Framework. P.23. URL: <https://www.oecd.org/eurasia/competitiveness-programme/eastern-partners/Snapshot-of-Ukraines-Energy-Sector-EN.pdf>

16 Zablodska I.V., Rohozian Yu.S. Just Transformation of Coal Regions: World Experience and the Legal Aspect: Economics and Law. 2020. P.18. URL: <http://economiclaw.kiev.ua/index.php/economiclaw/article/view/982/943>

17 Amosha O., Cherevatskyi D. Illusiveness of break-even state mines. URL: https://zn.ua/ukr/energy_market/himera-bezzbitkovosti-derzhavnih-shaht-297024_.html

Since 1990, there has been a downward trend in coal consumption in most of the developed countries of the world and an increase in coal consumption by Asian countries (primarily India and China, which consume half of global coal production and account for a fifth of the world's coal imports). Indonesia and Australia now cover more than half of the world's coal exports, and if we add Russia, that figure reaches 2/3.

The European Union instead has reduced its share of the world's coal imports from 35.4% in 1990 to about 10% in 2019¹⁸. EU countries are insistently abandoning coal production: since 1990, production in the EU has decreased more than four times (from 277,4 million tons to 65,1 million tons in 2019)¹⁹. However, the share of coal in electricity generation in the EU remains significant (18,2% 2018)²⁰, and in Poland this figure reaches 80%. In addition, Poland was the only EU country that initially refused to commit itself to becoming carbon-neutral by 2050. Polish miners' unions said they were ready for a dialogue on abandoning coal, but they believe the transformation of the industry will last at least 40 years²¹. However, under pressure from the EU, the Polish government held difficult negotiations with the unions and agreed to stop the mining and use of coal by 2049²².

In general, most developed countries have announced plans to completely phase out coal mining and use²³: Germany – by 2038, Great Britain – by 2025, France – by 2022, Greece – by 2028, Hungary – by 2030.

According to Europe Beyond Coal, as of October 2020, there were 219 lignite and hard coal-fired thermal power plants (554 units) with 136.45 GW of installed capacity in the EU, distributed unevenly across the community (Poland, Germany, Bulgaria, the Czech Republic, Italy and Romania are more reliant on coal). Germany and Poland alone are responsible for 56% of all installed coal capacity in the EU²⁴.

In recent years, the markets of Vietnam (+ 396%), the Philippines (+ 177.7%), Poland (+ 152.5%) and Malaysia (+ 121.6%) have shown the highest rate of growth in consumption²⁵. In Japan, which ranks sixth in the world for CO₂ emissions, more than half of the emissions in electricity generation in 2016 came from burning coal. In addition, Japan is among the countries that are continuing to develop a network of thermal power plants, and plans to launch another 18 GW of capacity in addition to the existing 45 GW²⁶. China has announced plans to become a carbon-neutral country by 2060. As of 2019, the country was responsible for 28.8% of the world's CO₂ emissions²⁷, and 60% of the country's energy generation depended on coal²⁸.

18 Coal Information: Overview. URL: <https://www.iea.org/reports/coal-information-overview>

19 Production of hard coal in the EU 1990-2019. URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Production_of_hard_coal_trend_line.jpg

20 Production of lignite in the EU – statistics. URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Production_of_lignite_in_the_EU_-_statistics

21 Poland shelves major coal sector restructuring plans. URL: <https://www.dw.com/en/poland-shelves-major-coal-sector-restructuring-plans/a-54363275>

22 Poland's coal-phaseout plans: Fact or fiction? URL: <https://www.dw.com/en/polands-coal-phaseout-plans-fact-or-fiction/a-55102698>

23 Ministry of Energy and Environmental Protection: Europe is giving up on coal consumption. URL: <https://www.kmu.gov.ua/news/minekoenergo-yevropa-vidmovlyayetsya-vid-spozhyvannya-vugillya>

24 Europe Beyond Coal database; status: 12 Oct 2020. URL: https://beyond-coal.eu/2020-10-12_europe_beyond_coal-european_coal_database_hc/

25 World's Top Exports. URL: <http://www.worldstopexports.com/coal-imports-by-country/>

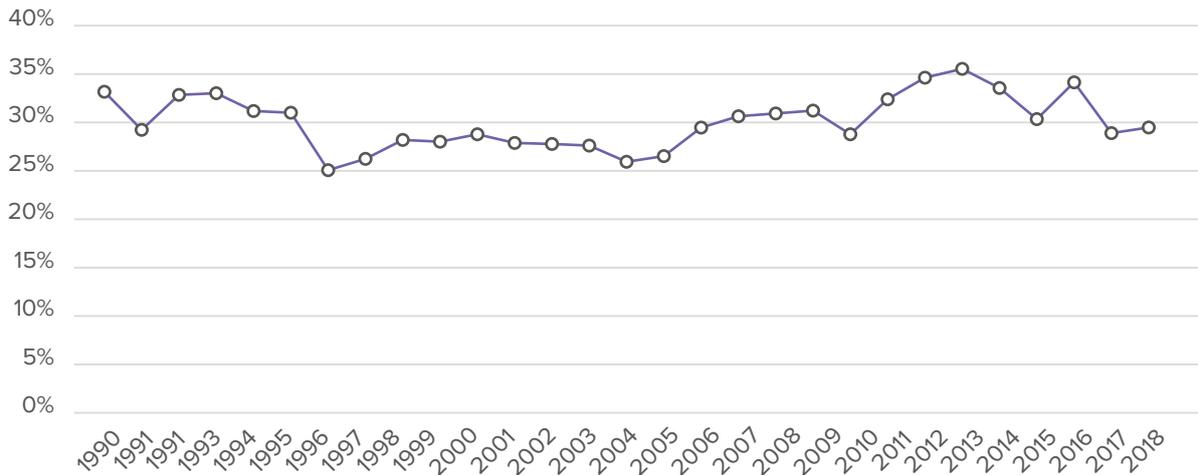
26 Coal phase-out - global and regional perspective. URL: <https://climateanalytics.org/briefings/coal-phase-out/>

27 BP. Statistical Review of World Energy 2020 (69th edition). URL: <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2020-full-report.pdf>

28 Will China be able to cut its carbon-dioxide emissions to zero by 2060 – The Economist. URL: <https://zn.ua/ukr/WORLD/chi-zmozhe-kitaj-zvesti-do-nulja-vikidi-vuhletsju-do-2060-roku-the-economist.html>; <https://www.climatechangenews.com/2020/09/23/5-burning-questions-chinas-carbon-neutrality-pledge/>

The Ukrainian coal industry has been stagnating steadily since independence. In 1991, Ukraine had 276 state-owned mines that produced 193 million tons of coal. Already in 2008, their number was reduced to 160 (of them 140 are state-owned), and the number of employees fell by 74%, or 640,000 people. Production in 2007 was 95 million tons (of which only 28 million tons were produced by state-owned enterprises)²⁹. In 2017, the share of coal in Ukraine's final consumption was 10%³⁰, although in 1990, this share reached one-third of the energy balance and 63.9% of total energy production. The share of coal in total primary energy supply has declined from 33% in 1990 to 29.6% in 2018³¹.

Fig. 1. Share of coal and peat in total primary energy supply



Source: State Statistics Service³²

Ukraine has made some progress in implementing its commitments under the Paris Agreement, in particular, it has submitted to the Secretariat of the UN Framework Convention on Climate Change the Ukraine's Low-Carbon Development Strategy by 2050³³, which, however, does not contain clear quantitative commitments of Ukraine to abandon coal during this period. In addition, due to a significant drop in the economy after the collapse of the USSR, greenhouse gas emissions in Ukraine in 2015 were 66.4% below the 1990 baseline and amounted to 323,36 million tons of CO₂ (in 2018, emissions increased slightly to 341 million tons of CO₂)³⁴, which allows Ukraine to rank this ambiguous result to its achievements.

The current Concept of Coal Industry Development (approved by CMU Decree No. 236-r of 7 July 2005)³⁵ provides that under favorable conditions, coal production should be increased in 2030 to 112 million tons per year. At the same time, another document – the Concept of Coal Industry Reform and Development until 2020 (approved by CMU Decree No. 733-r of 24 May 2017)³⁶ – was intended to comprehensively address problematic issues in the functioning of the coal industry, implementation of systematic measures to use its potential to increase coal production, improve efficiency and transfer the

29 The concept of coal industry reform approved by the Cabinet of Ministers' Resolution No. 737-r of 14 May 2008. URL: <https://www.kmu.gov.ua/npas/133581567>

30 Snapshot of Ukraine's Energy Sector Institutions, Governance and Policy Framework. P.14. URL: <https://www.oecd.org/eurasia/competitiveness-programme/eastern-partners/Snapshot-of-Ukraines-Energy-Sector-EN.pdf>

31 Dynamic series of energy balance indicators for 1990-2018. URL: http://www.ukrstat.gov.ua/operativ/operativ2019/energ/drpeb/drpeb_u.xls

32 Ibid.

33 Ukraine is one of the top ten leading countries in the climate process. URL: <https://mepr.gov.ua/news/32615.html>

34 Draft National Inventory of anthropogenic emissions from sources and absorption by sinks of greenhouse gases in Ukraine for 1990-2018 (in English, in accordance with the requirements of the Secretariat of the UN Framework Convention on Climate Change) for public review and comments and suggestions. URL: <https://mepr.gov.ua/news/34928.html>

35 Cabinet of Ministers of Ukraine. The concept of coal industry development. Approved by government decree No. 236-r of 7 July 2005. URL: <https://zakon.rada.gov.ua/laws/show/236-2005-%D1%80#Text>

36 Cabinet of Ministers of Ukraine. The Concept of Coal Industry Reform and Development until 2020. Approved by government decree No. 733-r of 24 May 2017. URL: <https://zakon.rada.gov.ua/laws/show/733-2017-%D1%80#Text>

coal industry to subsidy-free and self-supporting mode of operation, while addressing environmental and social problems of mining regions and creating favorable investment conditions for the privatization of mines. According to the concept, it was planned to achieve the following volumes of coal production by state-owned enterprises: 2017 – 6.3 million tons, 2018 – 8.7 million tons, 2019 and 2020 – more than 10 million tons annually.

However, it has not yet been possible to achieve such volumes of coal production.

According to the Energy Strategy of Ukraine until 2035 (approved by CMU Decree No. 605-r of 18 August 2017)³⁷, coal will remain a resource for power generation by 2035. For this purpose, it is envisaged to develop its own production, and the main part of the modernization of thermal power plants is planned for the period after 2025.

Ukraine's Low-Carbon Development Strategy by 2050 adopted in July 2018 describes several alternative options for implementing government policies aimed at reducing greenhouse gas emissions³⁸. However, this strategy has no leverages for implementation, because it was not adopted by a law of Ukraine or any other legal act of the government, but only sent as the intentions of Ukraine to the Secretariat of the FCCC through a protocol decision of the Cabinet of Ministers. In addition, Ukraine has adopted a number of documents that define state climate policy and provide for the reduction of emissions, in particular from coal combustion (the Concept of State Policy on Climate Change for the period up to 2030, the National Action Plan for Renewable Energy until 2020, etc.)³⁹. In 2015, Ukraine, as required by the Paris Agreement, prepared and sent the first Nationally Determined Contribution, which was not ambitious⁴⁰. In February and November 2020, the Ministry of Ecology and Natural Resources of Ukraine held two meetings of the working group to develop the second NDC of Ukraine to the Paris Agreement⁴¹, the work on which continues.

At the same time, the Ukrainian government supported the strategy of the European Green Deal and even developed a draft concept of "green" energy transition by 2050, which was presented in February 2020 by Minister of Energy and Environmental Protection O. Orzhel. Among the key goals are the intention to achieve a 70% share of renewable energy in electricity generation by 2050 and to completely decommission coal-fired thermal power plants (TPPs) by 2050⁴². However, this document remained at the draft stage and was not submitted to the government for consideration. In addition, the Ministry of Energy announced plans to finalize the Energy Strategy taking into account the key provisions of the European Green Deal⁴³.

In November 2020 there was a presentation and discussion of the draft concept of the State Programme of Transformation of Coal Regions of Ukraine by 2030, which is being developed by the Ministry of Development of Communities and Territories of Ukraine⁴⁴. To implement the concept, it is planned to develop and approve the very programme of transformation of coal regions⁴⁵. Also, the Ministry of Energy

37 Cabinet of Ministers of Ukraine. Energy Strategy of Ukraine until 2035 "Security, Energy Efficiency, Competitiveness". Approved by government decree No. 605-r of 18 August 2017. URL: <https://zakon.rada.gov.ua/laws/show/605-2017-%D1%80#Text>

38 Ukraine's Low-Carbon Development Strategy by 2050. URL: <https://mepr.gov.ua/news/31815.html>

39 Yeremenko I., Vyniarska M., Melnyk Yu. Ukraine's Climate Policy: the Energy Component, 2019. URL: https://ua.boell.org/sites/default/files/hbs_klimatichna_politika_ukrayini_energetichna_skladova.pdf

40 Diachuk A. Ukraine's contribution to the new global climate agreement. 2016. URL: https://network.bellona.org/content/uploads/sites/3/2016/06/Diachuk_Ukraine%C2%B4s-INDC_ukr.pdf

41 On February 4, 2019, the Ministry of Ecology and Natural Resources of Ukraine hosted the first meeting of the Working Group (WG) to develop Ukraine's second Nationally Determined Contribution (NDC) to the Paris Agreement. URL: <https://mepr.gov.ua/news/33226.html>

42 Draft Concept of Green Coal Transition of Ukraine by 2050. URL: https://mepr.gov.ua/files/images/news_2020/02032020/%D0%9A%D0%BE%D0%BD%D1%86%D0%B5%D0%BF%D1%86%D1%96%D1%8F%20%D0%B7%D0%B5%D0%BB%D0%B5%D0%BD%D0%BE%D0%B3%D0%BE%20%D0%B5%D0%BD%D0%B5%D1%80%D0%B3%D0%B5%D1%82%D0%B8%D1%87%D0%BD%D0%BE%D0%B3%D0%BE%20%D0%BF%D0%B5%D1%80%D0%B5%D1%85%D0%BE%D0%B4%D1%83.pdf

43 Ukraine will refine its energy strategy taking into account the European Green Deal initiative. URL: <https://ua.interfax.com.ua/news/economic/673635.html>

44 Ministry of Regional Development began discussing the Concept of the State Programme of Transformation of coal Regions of Ukraine by 2030. URL: <https://www.kmu.gov.ua/news/minregion-rozpochav-obgovorennya-konceptiyi-derzhavnoyi-programi-transformaciyi-vugilnih-regioniv-ukrayini-na-period-do-2030-roku>

45 On the development of the national programme for the transformation of the coal regions of Ukraine by 2027. URL: https://www.minregion.gov.ua/wp-content/uploads/2020/10/coalindustry_transformation_blue.pdf

is drafting an Integrated Climate Change and Energy Development Plan by 2030, which must comply with the requirements for documents of this type for EU countries under the EU Regulation on the Governance of the Energy Union⁴⁶.

In October 2020, the Ministry of Energy presented a new draft Coal Industry Reform Concept⁴⁷. Concept implementation period is 2020-2024. The document provides for the division of mines into three groups, and it is planned to combine the privatization of state-owned mines with the integration of the most efficient of them into PJSC Centrenergo, which is expected to produce up to 4,2 million tons of coal per year. By the end of 2020, it is planned to complete an audit of enterprises in order to transfer them to the balance sheet of the new company in early 2021⁴⁸.

► Impact of armed aggression by the Russian Federation

The war in eastern Ukraine has had a significant impact on the coal industry. As of 2015, as a result of Russian aggression, there remained 95 (of which 67 are state-owned and 28 private⁴⁹) coal mines⁵⁰ in the occupied territory, and 53 coal mines remained in Ukrainian government-controlled territory (of which 35 are state-owned)⁵¹. In the early years of the war, mines in non-government-controlled territory supplied coal to Ukraine. In December 2016, a blockade of freight traffic by Ukrainian activists began, which became complete in early 2017. On March 1, 2017, the so-called "DPR" and "LPR" imposed "external administration" on Ukrainian coal mining companies, causing DTEK to stop coal operations due to the de facto loss of control over them. On March 15, 2017, the NSDC adopted a decision "On Urgent Additional Measures to Counter Hybrid Threats to the National Security of Ukraine" (enacted by Presidential Decree No. 62/2017⁵²), which suspended the movement of cargo (particularly coal) across the contact line in Donetsk and Luhansk oblasts.

Today, according to experts, only four state-owned enterprises in the controlled territory are profitable⁵³. As of 2017, according to official data, there were two profitable state enterprises – one mine in the JSC "Shakhta "Nadiia" and one mine in SE "CC "Krasnolymanska"⁵⁴. The number of state-owned mine employees dropped from nearly one million in 1990 to 35,000 in 2020⁵⁵.

Due to the occupation of Crimea and part of Donbas, Ukraine's coal production more than halved in 2013-2014, from 64.4 million tons in 2013 to 25.5 million tons in 2019 (according to State Statistics Service⁵⁶).

46 Ukraine's Energy Strategy will be updated in accordance with the Integrated Climate Change and Energy Development Plan by 2030. URL: http://mpe.kmu.gov.ua/minugol/control/publish/article?art_id=245477679

47 Olha Buslavets presented a draft Coal Industry Reform Concept. URL: http://mpe.kmu.gov.ua/minugol/control/publish/article?art_id=245477645

48 Reform of the coal industry is back on the subsidy path. URL: <https://dixigroup.org/comment/reforma-vuhilnoi-haluzi-znovu-stupaie-na-shliakh-subsydiuvannia/>

49 Presentation of the Coal Industry Reform Concept. URL: https://www.facebook.com/permalink.php?story_fbid=22050531401267&id=100007890428393&__cft__%5b0%5d=AZUd80c0pj_u6o9uDTdEfPpT0L0pEw-w3cTTJwK-s0vUo6kh9ea_MFF5Xl_e1yG72wzDVjDvZR9MbEgZW-bdOXDRie284QPDYddzZQsRR0yd-rfFzoU0JK19tJuayvppHcA&__tn__=%2CO%2CP-R

50 Yatseniuk: Ukraine has lost 85 mines, and the situation with coal supplies remains difficult. URL: <https://ua.112.ua/ekonomika/yatseniuk-ukraina-vtratyla-85-shakht-sytuatsiia-z-postavkamy-vuhillia-zalyshaietsia-skladnoiu-265037.html>

51 Losses in Donbas: how much the occupation of the region cost the economy. URL: <https://hromadske.ua/posts/vtrati-donbasu-skilki-koshuvala-ekonomici-okupaciya-regionu; Coal industry in Ukraine: the number of mines and production levels. URL: https://ru.slovoidilo.ua/2020/04/30/infografika/jekonomika/ugolnaya-otrasl-ukraine-kolichestvo-shax-t-i-uroven-dobychi>

52 President of Ukraine. Decree "On the Decision of the National Security and Defense Council of Ukraine of March 15, 2017 "On Urgent Additional Measures to Counter Hybrid Threats to the National Security of Ukraine"" No. 62/2017 of March 15, 2017. URL: <https://zakon.rada.gov.ua/laws/show/62/2017#n2>

53 Krynytskyi K. Can Ukraine give up coal mining? URL: <https://ecoaction.org.ua/vidmovytsia-vid-vuhillia.html>

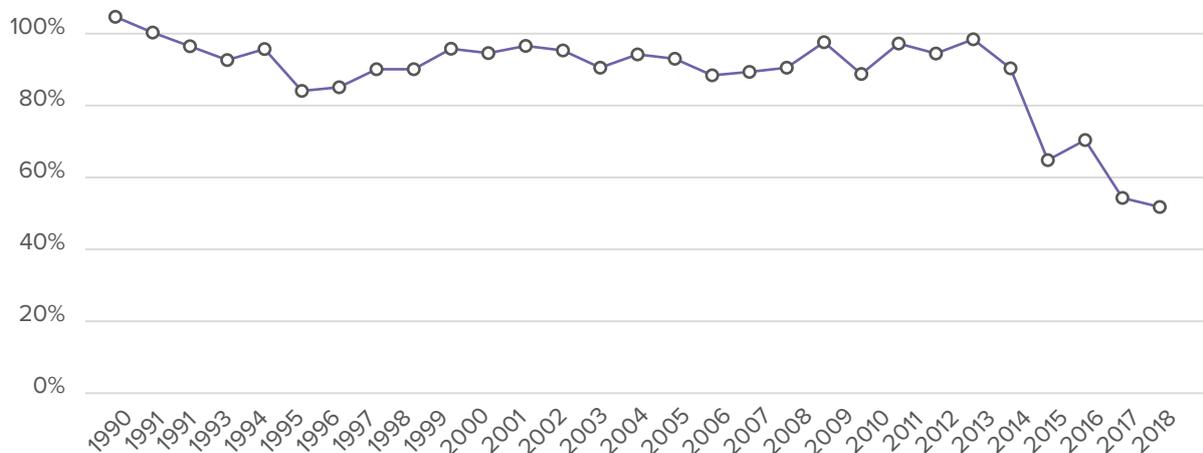
54 Accounting Chamber of Ukraine. Report on the results of the audit of the effectiveness of the use of state budget funds provided for the Ministry of Energy and Coal Industry of Ukraine for state support of coal mining companies to cover part of the cost of production costs of finished commercial coal products, approved by the decision No. 32-2 of 12.11.2019. URL: https://rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/Zvit_32-2_2019.pdf

55 Maksym Nemchynov: "This is a big step for reforming the coal industry." URL: https://www.facebook.com/MNemchynov/posts/193853055441290?__tn__=-R

56 Between the State Statistics Service data (25.5 million tonnes) and the Ministry of Energy data (24.9 million tonnes) the deviation is 0.6 million tonnes.

Our country has gone from an exporter to an importer of coal in the last seven years⁵⁷. In 2018, Ukraine imported around 50% of its coal consumption⁵⁸. This put Ukraine in 15th place in terms of dollar equivalent of coal imports value in 2019 (with a 49.3% drop in the value of coal purchased compared to 2018)⁵⁹.

Fig. 2. Meeting the needs with domestically-produced coal and peat



Source: State Statistics Service⁶⁰

Russian aggression not only deprived Ukraine of the opportunity to fully provide itself with coal, but also left our country without anthracite, which at the time served 7 out of 14 major Ukrainian thermal power plants, as all anthracite mines remained in occupied territory⁶¹. To address the situation, the government introduced an import parity formula in the wholesale electricity market to account for the cost of coal (the so-called "Rotterdam +" formula), which doubled the price of electricity produced from coal in January-November 2016⁶². After the launch of the new wholesale electricity market model in July 2019, this formula is no longer applicable⁶³.

By the end of 2020, the number of coal mines and correspondingly the number of employees in the coal mining sector in Ukraine had decreased compared to 2015, and there are now 33 state-owned and leased enterprises employing 35,000 people (58% of them are underground workers)⁶⁴. It is worth noting that the draft new Coal Industry Reform Concept provides a slightly different assessment: "As of 2020, the coal mining industry in Ukrainian government-controlled territory consists of 30 state-owned coal mining enterprises subordinate to the Ministry of Energy (including the construction-in-progress Mine No. 10 Novovolynska), 6 state-owned mines leased by DTEK Dobropillivuhillia LLC and 12 private mines"⁶⁵. These differences in data are explained by the fact that some state-owned coal enterprises are at the stage of bankruptcy or do not carry out economic activities.

57 World's Top Exports. URL: <http://www.worldstopexports.com/coal-imports-by-country>

58 Ukraine energy profile. URL: <https://www.iea.org/reports/ukraine-energy-profile>

59 Ibid.

60 Dynamic series of energy balance indicators for 1990-2018. URL: http://www.ukrstat.gov.ua/operativ/operativ2019/energ/drpeb/drpeb_u.xls

61 Who "sewed" "Rotterdam+" and how, and why no one is held accountable. URL: <https://mind.ua/publications/20200755-hto-i-yak-shiv-rotterdam-i-chomu-nihto-ne-ponese-zhodnoyi-vidpovidalnosti>

62 The cost of electricity produced by Ukrainian thermal power plants has risen by 16% in a month to a new record - Nashi Hroshi. URL: <https://hromadske.ua/posts/vartist-elektroenergiyi-viroblyeni-ukrayinskimi-tes-za-misyac-zroslo-na-16-donovogo-rekordu-nashi-groshi>

63 From now on, a new competitive model for the electricity market has been introduced, – Nasalyk. URL: https://lb.ua/economics/2019/07/01/430922_segodnyashnego_dnya_vvedena_novaya.html

64 Presentation of the Coal Industry Reform Concept. URL: [https://www.facebook.com/permalink.php?story_fbid=2822050531401267&id=100007890428393&__cft__\[0\]=AZUd80c0pj_u6o9uDTdEfPpT0L0pEw-w3cTTJwK-s0vUo6kh9ea_MFf5Xl_e1yG72wzDVjDvZR9MbEgZW-bdOXDRie284QPDYddzZQsRROyd-rfFzoU0JK19tJuayvppHcA&__tn__=%2CO%2CP-R](https://www.facebook.com/permalink.php?story_fbid=2822050531401267&id=100007890428393&__cft__[0]=AZUd80c0pj_u6o9uDTdEfPpT0L0pEw-w3cTTJwK-s0vUo6kh9ea_MFf5Xl_e1yG72wzDVjDvZR9MbEgZW-bdOXDRie284QPDYddzZQsRROyd-rfFzoU0JK19tJuayvppHcA&__tn__=%2CO%2CP-R)

65 Cabinet of Ministers of Ukraine. Draft Ordinance "On Approval of the Coal Industry Reform Concept and Approval of the Action Plan for its Implementation". URL: <http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245482969>

1.2. Restructuring of the coal industry in the public policy of Ukraine

The process of adapting the coal industry to the surrounding economic, environmental and political changes is commonly referred to in domestic and foreign specialized literature as 'Restructuring'.

There is no consensus among scholars on a clear and unambiguous interpretation of the term 'Restructuring'⁶⁶. In Ukrainian legislation, this term is used in two senses: 'financial restructuring' as a set of measures to restructure the monetary obligation and/or economic activity of the debtor⁶⁷, and 'enterprise restructuring' as the implementation of organizational, economic, financial and economic, legal, and technical measures aimed at reorganizing the enterprise, in particular by dividing it with the transfer of debt to a legal entity that is not subject to reorganization, at changing the ownership, management, organizational and legal form that will contribute to the financial recovery of the enterprise, increase production efficiency, increase the output of competitive products and full or partial satisfaction of creditors' claims⁶⁸. In addition, in Ukrainian law there is a term '(enterprise) reorganization', which means a merger, acquisition, division, separation or transformation of a legal entity⁶⁹. Separately, as a form of termination of a legal entity, the term 'liquidation' is used.

In the context of this study, we consider the restructuring of the coal industry as a process characterized by achieving efficient operation, meeting the needs of the economy with domestically-produced coal at competitive prices, profitability of coal enterprises subject to environmental requirements, stable socio-economic situation in coal mining regions, and also reducing the level of accidents and injuries in the industry⁷⁰.

Let's analyze the extent to which the government's actions in terms of restructuring the coal industry met these goals. To do this, we will monitor how the public policy of restructuring the coal industry was formed.

In Ukraine, the process of restructuring the coal industry has been launched by⁷¹ Decree of the President of Ukraine No. 116/96 "On Restructuring of the Coal Industry"⁷², adopted in 1996 (now repealed). This document provided in particular for the **establishment of state enterprises – legal entities on the basis of mines and other structural units that do not have the status of a legal entity** and are part of associations, trusts, plants managed by the Ministry of Coal Industry of Ukraine, **with subsequent corporatization of these state-owned enterprises and their transformation into state-owned open joint-stock companies, state-owned joint-stock coal companies**, as well as the establishment of state-owned holding companies. The decree also provided for separation of facilities whose activities are not related to coal mining and processing from coal mining and coal beneficiation state-owned enterprises. Unprofitable state-owned mines, which were subject to closure in the prescribed manner, were not subject to corporatization, their property was not transferred to the statutory funds of newly established joint-stock companies and state-owned companies, and the Ministry of Coal Industry had to take measures to lease out unprofitable mines.

In pursuance of the above-mentioned presidential decree, in 1997 the Cabinet of Ministers of Ukraine adopted Resolution No. 280 "On Structural Restructuring of the Coal Industry"⁷³, which states that **the**

66 Sapyska I. Restructuring of coal mines: theory and practice. // Economics. 2013. No.4 (124).

67 Verkhovna Rada of Ukraine. Law of Ukraine "On Financial Restructuring". URL: <https://zakon.rada.gov.ua/laws/show/1414-19#Text>

68 Verkhovna Rada of Ukraine. Bankruptcy Procedure Code of Ukraine (Vidomosti Verkhovnoi Rady (VVR), 2019, No. 19, Art.74). URL: <https://zakon.rada.gov.ua/laws/show/2597-19>

69 Labor Code of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/322-08#Text>; Economic Code of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/436-15#Text>

70 Saprykin V. Key issues and priority measures to complete the restructuring of Ukraine's coal industry. National security and defense. 2004. No. 11 (59). P.2. URL: https://razumkov.org.ua/uploads/journal/ukr/NSD59_2004_ukr.pdf

71 Restructuring of the coal industry of the Western region of Ukraine in the context of world experience / Zhuk P. V., Pochtaruk I. S. // Regional economy. 2015. No. 1. P. 167. URL: http://nbuv.gov.ua/UJRN/regek_2015_1_22

72 Decree of the President of Ukraine No. 116/96 of 7 February 1996 "On Structural Restructuring of the Coal Industry". URL: <https://zakon.rada.gov.ua/laws/show/116/96#Text>

73 Cabinet of Ministers of Ukraine. Resolution No. 280 of 28 March 1997 "On the Course of Structural Restructuring of the Coal Industry". URL: <https://zakon.rada.gov.ua/laws/show/280-97-%D0%BF#Text>

strategy of restructuring of the coal industry is based on the closure of economically unpromising mines. The resolution introduced the **division of coal enterprises into groups according to their economic and production status:** profitable, unprofitable (which should become profitable during the year), unprofitable (which are subject to closure in the medium term) and those that are liquidated. In addition, the document **establishes the procedure for determining the coal mining enterprises which receive state support and the mechanism for its provision,** as well as the criteria for determining the mines to be closed. The latter include: depletion of industrial coal reserves or their limitedness (not more than for 3 to 4 years); low technical and economic indicators that lead to a significant excess of the cost of coal production over its prices in the domestic market; difficult mining and geological conditions of extraction. Restructuring in this document means the reform of the coal industry, which should lead to an increase in coal production and a reduction in subsidies by increasing labor productivity.

Ukrainian Coal Programme⁷⁴ was approved by the government in 2001 to increase the efficiency of the coal industry and achieve the amount of coal production needed to meet the needs of the national economy. The document acknowledged that the main reason for the reduction of production capacity and low level of their development is the insufficient amount of capital investment in construction, reconstruction and technical re-equipment, as well as in the purchase of mining equipment to equip potholes and replace life-expired stationary equipment. The programme included a list of measures to **improve the management of restructuring processes in the coal industry, ensuring control over the creation of new jobs through funds for the restructuring of the coal industry and determining the amount of necessary investment in the industry.** The implementation of the programme was planned for 2001-2010. The declared goal of transformations in the industry according to the programme was to bring the industry out of the crisis, which should have resulted in an increase in coal production in 2010 to 110 million tons.

The Coal Industry Development Concept⁷⁵ approved by the government in 2005 provided that in order to increase the level of state regulation of processes in the industry, it is necessary to ensure the implementation of the following measures to restructure the coal industry:

- ▶ **settlement of the state relations with privatized coal mining enterprises** in terms of solving problems of energy security of the state, social protection of miners, safety and labor protection, rational use of subsoil, liquidation of unprofitable coal mining enterprises;
- ▶ **privatization on a competitive basis of mines** (sections) **attractive for investment**, capable of providing self-financing for further development;
- ▶ **privatization of unattractive for investment mines** (sections) as integral property complexes on a preferential basis with competitions for their development programmes.

Already in 2008, the government approved the Coal Industry Reform Concept⁷⁶, the purpose of which was to ensure the accelerated development of the coal industry and achieve the performance indicators provided by the Energy Strategy of Ukraine for the period up to 2030, through **market reform of enterprises** and the systematic elimination of crisis factors. Although the concept was mostly declarative in nature and did not contain a clear plan for the implementation of measures, it set an ambitious goal to **increase the production of thermal coal in 2010 to 60.6 million tons, and in 2015 to 73.6 million tons.**

The Energy Strategy of Ukraine for the period up to 2030 approved by the government in 2013⁷⁷ (now repealed) became the first strategic document in which the goals of reforming the coal industry included not only the **creation of a break-even and cost-effective industry** capable of providing Ukraine's economy with coal without state support, but also **overcoming the social and environmental consequences**

74 Cabinet of Ministers of Ukraine. Resolution No. 1205 of 19 September 2001 "On Approval of the Ukrainian Coal Programme". URL: <https://zakon.rada.gov.ua/laws/show/1205-2001-%D0%BF#Text>

75 Cabinet of Ministers of Ukraine. Ordinance No. 236-r of 7 July 2005 "On Approval of the Coal Industry Development Concept". URL: <https://zakon.rada.gov.ua/laws/show/236-2005-%D1%80#Text>

76 Cabinet of Ministers of Ukraine. Ordinance No. 737-r of 14 May 2008 "On Approval of the Coal Industry Reform Concept". URL: <https://www.kmu.gov.ua/npas/133581567>

77 Cabinet of Ministers of Ukraine. Ordinance No. 1071 of 24 July 2013. "On Approval of the Energy Strategy of Ukraine for the period up to 2030." URL: <https://zakon.rada.gov.ua/laws/show/n0002120-13#Text>

that may arise in the process of reform of the coal industry (unemployment due to closure of systemic enterprises, threat to the environment due to conservation and closure of mines).

The main steps to reform the industry were:

- ▶ urgent **creation of conditions for attracting private investment in the industry through the privatization of coal enterprises** and the use of public-private partnership mechanisms (leases, concessions, etc.);
- ▶ **modernization of the mine fund** by private investors and optimization of the management system;
- ▶ **improving the mechanism of state support for the industry** by phasing out subsidies for operating costs of state-owned mines, along with increasing funding for employment and social support for workers laid off as a result of the reform;
- ▶ development and implementation of a **programme to eliminate the negative social consequences of reforming the industry**;
- ▶ **liberalization of the coal market**.

To replace the last document, the government in 2017 approved the Energy Strategy of Ukraine for the period up to 2035⁷⁸. It provided for the **creation of a coal market** in Ukraine by 2020, and the restructuring of the coal industry will be accompanied by a **set of measures to mitigate the social and environmental consequences of liquidation/conservation of coal mines and social reconstruction** of mine closure regions in accordance with **European best practices**. The key goals of the state in the coal sector include:

- ▶ **optimization of the structure** of coal mining and other state enterprises of the coal industry, improvement of economic and technical performance, reduction and elimination of regulation and subsidization of operating activities of coal mining and coal processing enterprises (by 2020);
- ▶ **development of the necessary infrastructure** to strengthen Ukraine's ability to provide the volume of export-import operations with coal products (by 2020);
- ▶ **completion of the programme of reforming the industry**, in particular state coal mines through the privatization of promising state mines (by 2025);
- ▶ **optimization of economic and technical performance indicators**, reduction and elimination of regulation and subsidization of operating activities of coal mining and coal processing enterprises after the reintegration of UCT in Donetsk and Luhansk oblast (by 2025);
- ▶ **liquidation/conservation of inefficient mines** with the implementation of plans to mitigate social and environmental consequences for each enterprise (by 2025);
- ▶ **implementation of programmes for social reconstruction** of mine closure regions (by 2025);
- ▶ achieving a level of coal production that **will provide** consumers of thermal coal mainly with **domestically-produced fuel** (by 2025);
- ▶ **maximizing production efficiency** for Ukraine's own needs (by 2035);
- ▶ **completion of measures for social reconstruction of regions** and settlements where mines have been closed (by 2035).

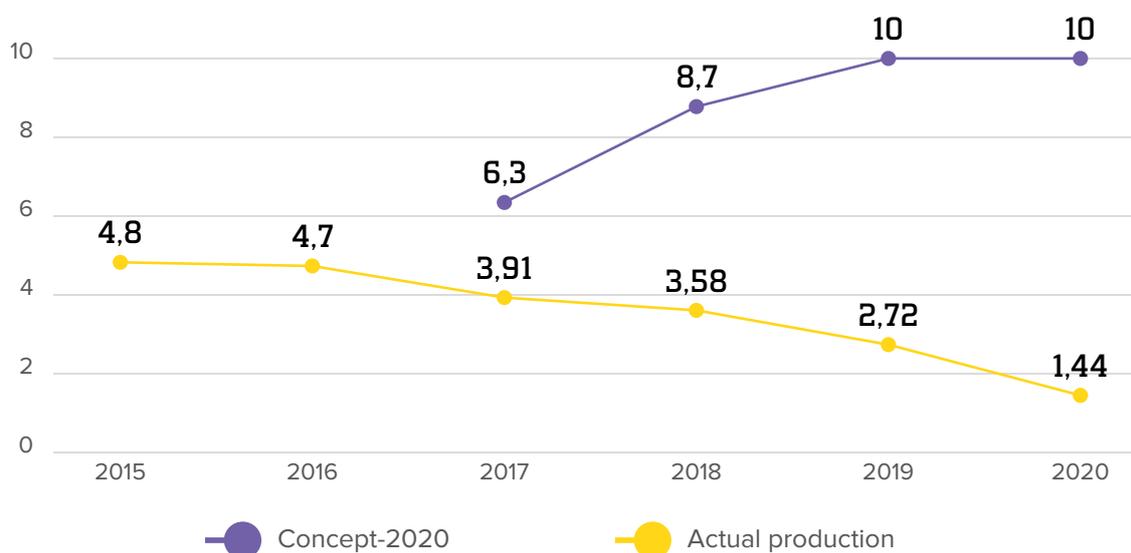
The Concept of Coal Industry Reform and Development for the period up to 2020, which is currently de

78 Cabinet of Ministers of Ukraine. Ordinance of the Government No. 605-r of 18 August 2017. "On Approval of the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness". URL: <https://zakon.rada.gov.ua/laws/show/605-2017-%D1%80#Text>

jure in force⁷⁹, approved by the government in 2017, contained the official recognition that the lack of real, well-financed development and restructuring programmes for the industry was one of the reasons for the unsatisfactory condition of state-owned enterprises in the coal industry. The objective of this concept was "comprehensive solution of issues in the coal industry, implementation of systemic measures to use its potential to increase coal production, improve efficiency and transfer the coal industry to non-subsidized and self-sustaining mode of operation while solving environmental and social problems in mining regions and creating favorable investment conditions for the privatization of mines"⁸⁰.

Although the mentioned Concept was accompanied by an action plan, this plan was limited to 2017, and the list of actions was reduced to the establishment of the state enterprise "National Coal Company" and the beginning of the transfer of state coal mining assets. It should be noted that the Ministry of Energy prepared and submitted for consideration to the Cabinet of Ministers a draft ordinance "On Recognizing as invalid the Ordinances of the Cabinet of Ministers of Ukraine No. 733 of 24 May 2017 and No. 1019 of 6 December 2017", which provides for the abolition of the Concept of Coal Industry Reform and Development for the Period up to 2020 and the government's decision to establish the State Enterprise "National Coal Company" as such, which were not implemented⁸¹.

Fig. 3. Comparison of planned indicators* and actual coal production by state mines, 2015 - 2020 (million tons)



*According to the Concept of Coal Industry Reform and Development for the Period up to 2020

In October 2020, the Ministry for Communities and Territories Development of Ukraine announced the completion of preparation of the National Programme for the Transformation of Coal Regions by 2027⁸², and the Ministry of Energy announced the completion of preparation the draft Concept of Coal Industry Reform⁸³. The latter concept recognizes that the previous framework document (the Coal Industry Reform and Development for the Period up to 2020 approved by the ordinance of the Cabinet of Ministers of Ukraine No. 733-r of 24 May 2017) has not been implemented. Also, key indicators and targets were not

79 Cabinet of Ministers of Ukraine. Ordinance No. 733-r of 24 May 2017. "On Approval of the Concept of Coal Industry Reform and Development for the Period up to 2020". URL: <https://zakon.rada.gov.ua/laws/show/733-2017-%D1%80#Text>

80 Ibid.

81 Ministry of Energy and Environmental Protection of Ukraine. Letter to the Accounting Chamber (Ref. No.60/05 dated 13.01.2020). URL: http://www.rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/796.pdf

82 The concept of the national programme of transformation of coal regions of Ukraine by 2027. URL: <https://www.minregion.gov.ua/press/news/konczepczyia-naczionalnoyi-programy-transformacziyi-vugilnyh-regioniv-ukrayiny-do-2027-roku/>

83 Draft Ordinance of the Cabinet of Ministers of Ukraine "On Approval of the Concept of Coal Industry Reform and Approval of Action Plan for its Implementation". URL: http://mpe.kmu.gov.ua/minugol/control/publish/article?art_id=245482980

achieved, and the action plan remained unimplemented. The authors of the document state that currently the coal industry of Ukraine is in a critical state, and list the negative factors that led to this: reduction of coal production, high cost of production at state-owned coal mining enterprises, their unprofitability and the corresponding increase in budget support, accounts payable, permanent arrears of wages, reduction in the number of employees, tense social situation in labor collectives and mining regions, the continuance and cost of the process of liquidation of mines.

The goal of the new concept, according to the draft, is to provide a comprehensive solution to the problems of the coal industry, under which it will not require state support. The realization of this goal is associated with the division of state-owned coal mining enterprises (mines/mine administrations) into three groups, taking into account financial and economic, mining and geological and other factors and features.

The first group will include those mines/mine administrations, the coal products of which will serve as a resource base for PJSC "Centerenergo". The second group will include dual-purpose enterprises that produce energy and coking coal and have other markets for their products (in the future it is planned to privatize or liquidate them). Finally, the third group will include mines/mine administrations, which are in a financial and economic crisis and require significant private investment (they are planned to be privatized as integral property complexes, for which it is possible to reformat economic activity). It is noteworthy that the draft concept mentions its benefits for taxpayers, namely the rational and efficient use of taxes paid, and at the same time there are no quantitative criteria for determining its effectiveness.

The analysis of above-mentioned documents and policies gives grounds to believe that until recently the **government's approach to the restructuring of coal enterprises concerned mainly the economic aspect of the issue, namely the volume of coal production and its profitability**. As a result, for 29 years of independence it has not been possible to achieve even these measurable indicators of the success of the restructuring of the coal industry. On the other hand, the accompanying social and environmental aspects of the liquidation of coal enterprises were largely ignored, although the intention to develop and implement the necessary methods for calculating the necessary costs for the programmes of employment of dismissed workers and rehabilitation of coal mining sites was repeatedly declared.

It should be added that current research on the restructuring of the coal industry in the world contains a fairly long list of aspects that must be considered when planning the closure of coal mining enterprises: economic, demographic (forced migration), cultural (including identity issues), psychological, infrastructural, social structure of the population, employment, etc.⁸⁴

Foreign experience

In **Poland**, where the restructuring of the coal industry began in 1989s-1990s from liquidation of centralized coal industry management structure and transformation of mines in independent business units. A system of measures has been developed to mitigate the negative socio-economic consequences of restructuring in the coal-mining regions.

This system provided for a reduction of the retirement age for laid-off miners by five years with accrual of severance pay; providing miners who have agreed to retraining within two years after lay off with payments in the amount of 65% of wages; the possibility of providing preferential bank loans to laid-off employees to master other activities⁸⁵.

In **France**, the strategy of gradually curtailing its own coal production has been pursued for over 25 years. The state-owned coal company Charbonnages de France, which was the backbone of the coal industry and operated until 2008, stopped coal mining after 2004 and took on responsibilities to close mines across the country, promote the employment of laid-off miners and rehabilitate areas in the areas of former coal mining.

84 Strambo C. Navigating coal mining closure and societal change: learning from past cases of mining decline. SEI working paper. July 2019. URL: <https://www.sei.org/wp-content/uploads/2019/07/navigating-coal-mining-closure-and-societal-change.pdf>

85 Zhuk P. V., Pochtaruk I. S. Restructuring of the coal industry of the Western region of Ukraine in the context of world experience // Regional economy. 2015. No. 1. P. 167. URL: http://nbuv.gov.ua/UJRN/regek_2015_1_22

The restructuring of the industry began two years before the closure of the social programmes and continued throughout this period. Thanks to this programme, all laid-off miners (except people of retirement age) received an offer of employment, many of whom got jobs at the state electricity company *Électricité de France* (EDF). After completing the vacancies, the rest of the former miners were able to take advantage of the Vacation at the End of Career programme, which gave miners over the age of 45 the right to remain in the company's staff and actually be on paid leave until retirement age. In addition, Charbonnages de France has set up a subsidiary Sofirem to attract new business types to problem regions⁸⁶.

In the **Czech Republic**, active changes in the coal industry began in 1991 with the government imposing environmental restrictions on six lignite mining sites in the North Bohemian Basin and setting air pollution limits in coal basins. This was to ensure that towns and villages near coal deposits would not be demolished and relocated due to the expansion of mining activities, as well as to improve the environment in these regions⁸⁷. The number of jobs in the coal industry decreased from almost 160 thousand in 1990 to almost 21 thousand in 2013 (of which 8.8 thousand were employed in the extraction of lignite), and the contribution of the mining industry to the country's employment rate fell below 1%⁸⁸. In September 2012, the Czech parliament passed an amendment to the mining law that stripped the right to expropriate private property for mining purposes, following active pressure from the public and local authorities in coal-affected areas. Therefore, mining companies could expand their activities only if the owners voluntarily waived their land rights.

In 2015, mining companies together with trade unions achieved the government's revision of the territorial environmental restrictions set in 1991 for ČSA and Bilina mines. However, as a result of a compromise with environmentalists, the boundaries of ČSA mine did not change, and Bilina mine was allowed to go beyond its original boundaries. In the same year, the government launched the Re:Start strategy for the economic restructuring of the country's main mountain regions – Ústí nad Labem and Karlovy Vary regions and Ostrava. The first action plan under the programme provided for the allocation of 1.5 billion euros during the first three years for development projects in these regions⁸⁹.

Analysis of the documents defining the principles of state policy aimed at restructuring the coal industry also shows that the implementation of this policy was characterized by inconsistency, ambiguity in setting goals and lack of response to certain systemic shortcomings in the restructuring of the industry. In particular, this concerned the lack of adequate funding for modernization measures, retraining of workers and the creation of alternative jobs, rehabilitation of mining sites, etc. The only indicator of the reform where the government has made progress has been the reduction in the number of coal companies. At the same time, the absolute majority of adopted acts of legislation during the entire period of Ukraine's independence, which concerned the reform of the coal industry, were not implemented (in part or in full).

These conclusions are also confirmed by the Accounting Chamber: according to its experts⁹⁰, none of the listed concepts and strategies of reforming the coal industry has been implemented, the regulations necessary for their implementation have not been developed and adopted, and the list of unprofitable coal mining enterprises to be restructured has not been clearly defined. This criticism, however, is slightly exaggerated, as some documents still contained lists of measures and unprofitable enterprises that were subject to closure. However, this did not ensure the achievement of the tasks of restructuring the coal industry in terms of increasing coal production, reducing government subsidies and achieving profitability of production and each subsequent document only fixed a further deterioration of the industry.

86 Ibid.

87 Experience of transformation of mining regions: recommendations for Ukraine (full version). URL: <https://ecoaction.org.ua/wp-content/uploads/2019/06/transformation-experiences-ua-full.pdf>

88 Ibid.

89 Ibid.

90 Accounting Chamber of Ukraine. Report on the results of the audit of the efficiency of the use of state budget funds provided to the Ministry of Energy and Coal Industry of Ukraine for the restructuring of the coal industry. Approved by the decision of the Accounting Chamber No. 11-2 of 16 May 2017. P.8-10. URL: http://rp.gov.ua/upload-files/Activity/Collegium/2017/11-2_2017/zvit_11-2_2017.pdf

1.3. Structure of Ukraine's coal mining industry (public sector)

► Ministry of Energy of Ukraine

The state coal industry in Ukraine is managed by the Ministry of Energy, which is the main body in the system of central executive bodies and in accordance with its responsibilities formulates and implements state policy in the coal industry and manages coal companies⁹¹. The Ministry of Energy manages 80 state enterprises and organizations, exercises the authority to manage corporate rights of the state at 28 enterprises⁹².

Fig. 4. Management structure of the coal industry as of early 2020 (in government-controlled territory)



► State-owned coal mining enterprises

As of 2020, all state-owned coal mining enterprises in Ukraine are subordinated to the Ministry of Energy of Ukraine. After the start of the military aggression of the Russian Federation in 2014, some state-owned mining companies found themselves in the territory of Donetsk and Luhansk oblasts not controlled by the government. Due to this, the authorities temporarily do not exercise their powers at 67 state-owned mines.

91 Cabinet of Ministers of Ukraine. Regulation "On Approval of Regulation on the Ministry of Energy of Ukraine" No. 507 of 17 June 2020. URL: <https://www.kmu.gov.ua/npas/pro-zatverdzhennya-polozhennya-pro-ministerstvo-energetiki-ukrayini-i170620-507>

92 Ministry of Energy of Ukraine. Order "On approval of the Lists of state enterprises, institutions and organizations belonging to the sphere of management of the Ministry of Energy, companies in respect of which the Ministry of Energy exercises authority to manage corporate rights of the state, and economic structures controlled by the Ministry of Energy" No. 586 of 10 September 2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245470653&cat_id=244916218

According to various estimates, in the uncontrolled territory of Donetsk and Luhansk oblasts, two thirds of mines of all forms of ownership have already closed or are not operating. It is also reported that the closure of mines took place without following special procedures, which contains serious risks of landslides, flooding, subsidence⁹³.

In the government-controlled territory, the Ministry of Energy performs management functions over 11 coal mining enterprises, including 33 mines in the Donetsk and Lviv-Volyn coal basins (four of which are being prepared for liquidation).

Unsystematic government policy has led to a drop in production at state-owned mines, accompanied by an increase in production costs. Currently, the share of coal mined in state-owned mines has become insignificant for the market as a whole. For eight months of 2020, Ukrainian enterprises extracted 18.53 million tons of coal, and state-owned mines extracted 1.8 million tons, which is 9.8% of total production⁹⁴.

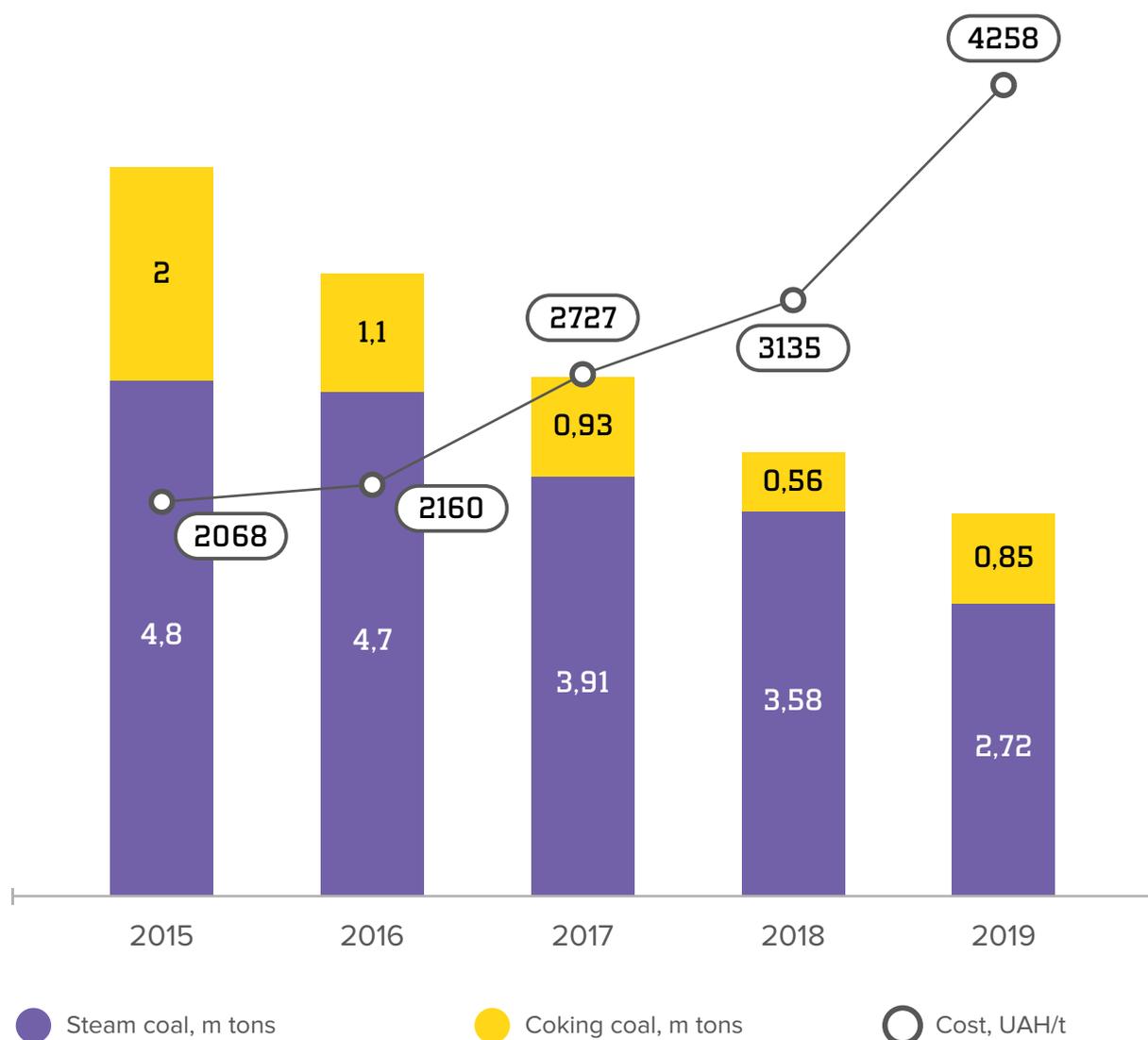
If we look at the cost of a ton of coal produced not on average, but for individual mines, the price may vary in some months from UAH 1700 per ton at one mine to UAH 16000 per ton at another (for example, in August 2020 the cost of one ton of coal at PJSC "Mine Nadiia" was UAH 2597.92 per ton, JSC "Lysychanskvuhillia" – UAH 12917.36 per ton, SE "Selidivvuhillia" – UAH 16611.55 per ton)⁹⁵.

93 "Black Territory". What is happening with the mines in ORDLO? Radio Svoboda. URL: <https://www.radiosvoboda.org/a/donbass-realii/30430379.html>

94 Ministry of Energy. Information reference on the main indicators of development of the branches of the fuel and energy complex of Ukraine for August and 8 months of 2020. URL: <http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245479063>

95 Open Data Portal. Information on coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

Fig. 5. Volume of coal production at state-owned mines to the average cost of production, 2015–2019



Source: Ministry of Energy^{96, 97}

► Coal Market Operator

The Ministry of Energy has repeatedly attempted to regulate the public coal sector with the help of relevant state-owned enterprises, which should act as the sole buyer of coal from state-owned mines and the state trader in the coal market.

In particular, the companies with the functions of coal market operator were established under the Ministry of Energy for the sale of coal products from state-owned mines. In 2003–2014, NJSC Coal of Ukraine operated (bankruptcy proceedings were initiated, is in a state of termination⁹⁸). In 2014, SE State Coal Company was established, as of 29 November 2020, the company has a tax debt of over UAH 414 million and over UAH 1.5 million in salary arrears⁹⁹. According to open sources, this SE is not in a state of

96 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

97 Open Data Portal. Information on coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

98 Open Databot. URL: <https://opendatabot.ua/c/32709929>

99 Open Databot. URL: <https://opendatabot.ua/c/39388266>

termination. In 2016, SE Derzhvuhilliapostach was established¹⁰⁰. Key areas of activities of the company:

- ▶ participation in the formation of the fuel balance of the state based on the study of demand and available resource base;
- ▶ performing the function of a state trader of coal products;
- ▶ purchase of coal from coal mining enterprises and its supply to energy generating companies, coke industry enterprises and other consumers of coal products;
- ▶ export-import operations with coal products;
- ▶ implementation of independent quality control of coal products.

In early 2020, the Ministry of Energy and Environmental Protection announced the establishment of a new state enterprise SE Ukrvuhillia¹⁰¹, an analogue of SE Derzhvuhlepostach with the same functions¹⁰². According to open sources, now both companies exist in parallel¹⁰³. According to the published financial indicators, Derzhvuhlepostach sold products (works, services) for UAH 224,756 in the first six months of 2020, and Ukrvuhillia sold products (works, services) for UAH 2,140, but both companies are listed as operating¹⁰⁴.

In Ukraine there is also no full-fledged exchange trade in coal. In 2016, a draft law "On the Coal Products Market" was developed, which was never adopted¹⁰⁵. According to the Ukrainian Energy Exchange, trade in coal products took place during 2019-2020, but on a very small scale, and averaged several tens of tons per month¹⁰⁶.

▶ The role of coal in the structure of electricity generation

Among electricity producers in Ukraine, the main consumers of coal are combined heat and power plants (CHPs) and thermal power plants (TPPs), which, in addition to coal, use natural gas and fuel oil for generation. Depending on market conditions and resource prices, plants combine their use¹⁰⁷.

100 Ministry of Energy and Coal Industry "On the Establishment of the State Enterprise "Derzhvuhlepostach". Order No. 19 of 16 January 2016. URL: <http://mpe.kmu.gov.ua/minugol/control/uk/doccatalog/list?currDir=50043>

101 Ministry of Energy and Environmental Protection. Order "On the Establishment of the State Enterprise "Ukrvuhillia"" No. 13 of 14 January 2020. URL: <http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245434620>

102 The Ministry of Energy to create a state enterprise Ukrvuhillia. URL: <https://expro.com.ua/novini/mnekoenergo-planu-stvoriti-derjpdprimstvo-ukrvugllya>

103 Open Databot. URL: <https://opendatabot.ua/c/43474633> and <https://opendatabot.ua/c/40225511>

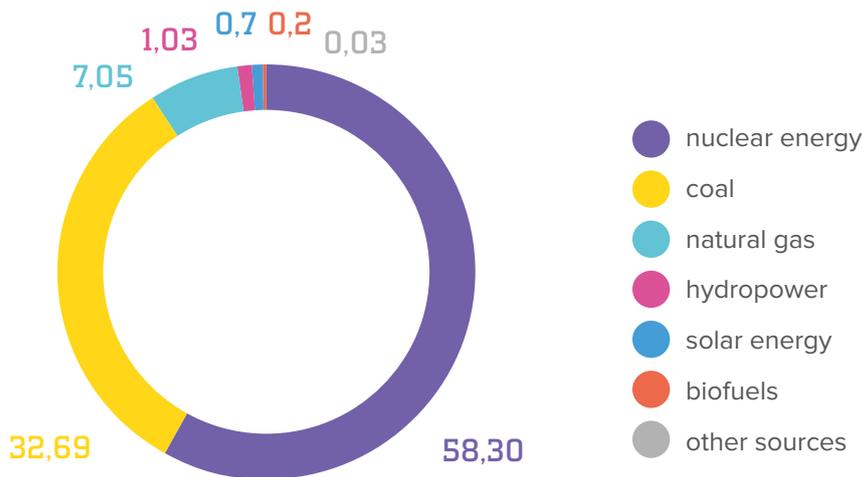
104 Open Data Portal. Indicators of financial and economic activity of economic entities of the public sector of the economy belonging to the sphere of management of the Ministry of Energy. URL: <https://data.gov.ua/dataset/0cd89d01-1a71-430a-974f-4ffd613aeb2e>

105 Ministry of Energy. The draft Law of Ukraine "On Coal Products Market" is developed. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245084721&cat_id=35109

106 Ukrainian Energy Exchange. Exchange quotations: Coal products. URL: <https://www.ueex.com.ua/exchange-quotations/coal-products/#data-filter>

107 Promising state mines need to be transferred to the company and fight for cost reduction – Head of "Centerenergo" Korchynskiy// URL: <http://www.centrenerg.com/post/perspektivnyye-gosshakhty-nuzhno-peredat-kompanii-i-bit-sya-zasnizheniye-sebestoimosti-glava-tsentrenerg-korchinskiy/>

Fig. 6. Electricity generation in Ukraine by energy source in 2019 (%)



Source: International Energy Agency¹⁰⁸

According to the International Energy Agency (IEA), in 2019 Ukraine produced 46,543 GWh of coal, which is 32.69% of all electricity generated during the year (Fig. 6). Traditionally, most electricity is generated from nuclear fuel (58.30%), and for a small portion a natural gas is used (7.05%).

At the same time, the technical equipment of coal generation is in unsatisfactory condition. According to NERC data for 2017, out of 83 power units of thermal power plants of power generating companies, 72 power units operate beyond the park service life, five power units are operated beyond the service life limit and six power units are operated beyond the design life¹⁰⁹. Also, the NERC in the report for 2019 noted that the depreciation of fixed assets of energy generating companies is approximately 70-80%¹¹⁰.

It is worth noting that coal generation poses serious risks of environmental damage. Approximately half of all emissions of carbon dioxide (CO₂) into the atmosphere are made by producers of electricity and heat (98 million tons in 2018)¹¹¹. Despite the general downward trend in CO₂ emissions since the 1990s, the share of emissions from coal generation has always been around 50%.

Despite the "toxicity" of coal generation for the economy and the environment, it occupies an important place in the Ukrainian power system due to the fact that thermal power plants have the ability to quickly regulate electricity generation depending on the total load, which effectively balances capacity in the system¹¹².

► Role of coal in other industries

The largest consumer of coal in Ukraine is the industry, which in 2018 consumed 77.85% of all coal used in the country¹¹³. In particular, in 2018 the largest consumers were enterprises of ferrous (4324 thousand tons) and non-ferrous (191 thousand tons) metallurgy, non-metallic mineral products (1039 thousand tons),

108 Electricity generation by source, Ukraine International Energy Agency (1990–2019). URL: <https://www.iea.org/data-and-statistics?country=UKRAINE&fuel=Energy%20supply&indicator=ElecGenByFuel>

109 NERC. NERC Annual Report 2017. URL: https://www.nerc.gov.ua/data/filearch/Catalog3/Richnyi_zvit_NKREK_P_2017.pdf

110 NERC. NERC Annual Report 2019. URL: https://www.nerc.gov.ua/data/filearch/Catalog3/Richnyi_zvit_NKREK_P_2019.pdf

111 CO₂ emissions by energy source, Ukraine 1990–2018. Ukraine International Energy Agency. URL: <https://www.iea.org/data-and-statistics?country=UKRAINE&fuel=CO2%20emissions&indicator=CO2BySource>

112 Overview of the Ukrainian coal market. KRESTON. URL: <https://kreston-gcg.com/kreston-ukraine/>

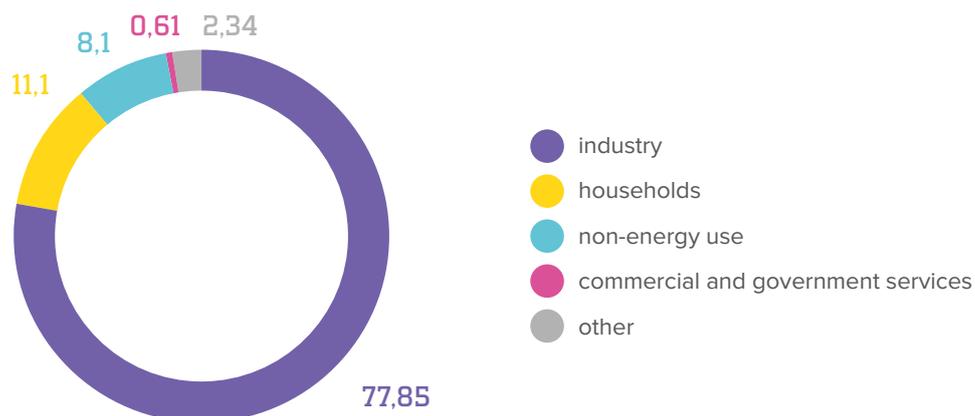
113 Coal final consumption by sector, Ukraine 1990–2018. International Energy Agency. URL: <https://www.iea.org/data-and-statistics?country=UKRAINE&fuel=Energy%20consumption&indicator=CoalConsBySector>

food and tobacco products (57 thousand tons)¹¹⁴.

As a result, there is a relationship between the volume of coal production and the price of industrial products – the cost of extracted coal affects the price of metallurgical products that use it.¹¹⁵. Thus, this industry becomes dependent on coal mining, and because of its strategic importance for Ukrainian exports, coal mining becomes a subject of political manipulation.

Coal in Ukraine is also used to generate thermal energy. According to the State Statistics Service, coal, peat and industrial gases in 2017 accounted for 20% of thermal energy generation¹¹⁶.

Fig. 7. Coal use by types of consumers, 2018 (%)



Source: International Energy Agency¹¹⁷

The areas most dependent on coal are electricity and heat generation and the metallurgical industry. At the same time, it would be incorrect to claim that there is no alternative to coal in these areas. For example, Ukrainian TPPs and CHPs have the capacity to operate on other fossil fuels, such as natural gas or fuel oil, and are developing alternative energy sources (in particular, they can switch to biomass – entirely or in a mixture with other fuels). In particular, in mid-2019, Luhansk TPP temporarily switched to natural gas due to delays in the supply of coal products¹¹⁸, however, this in turn led to the accumulation of debt for gas (given the higher cost of electricity generation from gas at this TPP). In 2020, PJSC Centerenergo replaced coal with gas during a sharp drop in natural gas prices¹¹⁹.

Coal in Ukraine is also used for household needs, namely for heating residential buildings. The share of the household sector in the consumption of coal in the product energy balance for 2018 was 21%. According to the State Statistics Service, in 2018 households used solid fuel for heating homes (94%), water heating (5.6%), cooking (0.4%)¹²⁰. The government pays a monetized subsidy to households that

114 State Statistics Service. Energy (Product) Balance of Ukraine 2018. URL: http://www.ukrstat.gov.ua/operativ/operativ2014/energ/en_bal_prod/Bal_prod_2018_u.xls

115 Green Book. Stimulating industrial enterprises to energy efficiency and climate protection. BRDO. URL: [https://cdn.regulation.gov.ua/b0/66/39/4e/regulation.gov.ua_Green%20Book%20EE%20GIZ%203.3%2031.10.2019%20\(6\)%20.pdf](https://cdn.regulation.gov.ua/b0/66/39/4e/regulation.gov.ua_Green%20Book%20EE%20GIZ%203.3%2031.10.2019%20(6)%20.pdf)

116 State Statistics Service. Energy Statistics 2017. URL: http://www.ukrstat.gov.ua/operativ/infografika/2019/energ/energ_2017.pdf

117 Coal final consumption by sector, Ukraine 1990–2018. International Energy Agency. URL: <https://www.iea.org/data-and-statistics?country=UKRAINE&fuel=Energy%20consumption&indicator=CoalConsBySector>

118 Luhansk TPP was forced to switch from coal to gas. URL: <https://www.epravda.com.ua/news/2019/07/30/650098/>

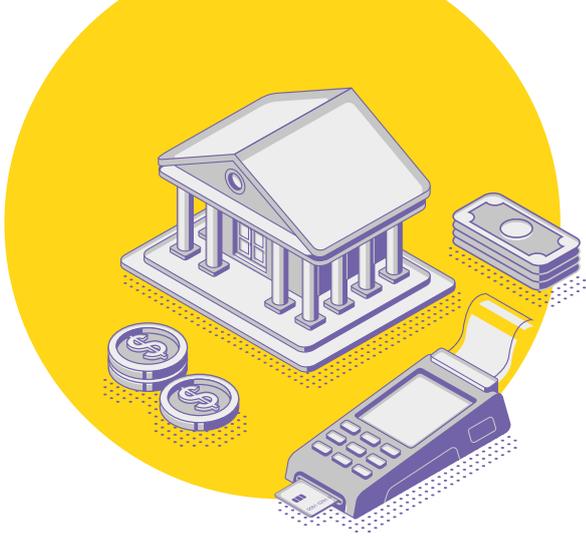
119 Promising state mines need to be transferred to the company and fight for cost reduction – Head of "Centerenergo" Korchynskyi. URL: <http://www.centerenergo.com/post/perspektivnyye-gosshakhty-nuzhno-peredat-kompanii-i-bit-sya-za-snizheniye-sebestoimosti-glava-tsentrenergo-korchynskiy/>

120 State Statistics Service. Structure of final energy consumption by households by purpose in 2018. URL: http://www.ukrstat.gov.ua/operativ/operativ2020/energ/st_kn_sposh_energ_dom/sksedcp_u/st_kn_sposh_energ_dom_18u.htm

use solid fuel – UAH 2,000 per 1 ton of burned solid fuel annually¹²¹.

Thus, when formulating state policy on coal consumption, it is important to take into account not only its established role in the Ukrainian economy, but also the effectiveness of this role and the associated risks: damage to the environment, building dangerous interdependent links between different sectors of the economy, etc. Therefore, when subsidizing the coal industry, the state should focus not on maintaining the viability of an inefficient system, but on specific and measurable performance indicators that can determine the progress and effectiveness of such subsidies.

121 Cabinet of Ministers of Ukraine. Resolution "On the establishment of minimum standards for providing the population with solid and liquid furnace household fuel and liquefied gas and the limits of their cost for the provision of benefits and housing subsidies" No. 356 of 23 April 2012. URL: <https://zakon.rada.gov.ua/laws/show/356-2012-%D0%BF#Text>



2. ASSESSMENT OF THE EFFECTIVENESS OF PUBLIC FINANCING OF THE COAL INDUSTRY

2.1 Methodological basis for assessing the effectiveness of budget expenditures

Assessment of the effectiveness of budget expenditures is a tool for improving and prioritizing budget expenditures, which is to change the purpose of budget allocations in favor of those programmes that are expected to provide the greatest public benefit in conditions of limited resources. Because the budget planning process often focuses on new expenditures, and existing programmes may be extended due to the inertia of the budget process without adequately assessing the effectiveness of expenditures in previous periods, there is always a need to evaluate the effectiveness of individual budget programmes to minimize expenditures that are inefficient, have lost relevance due to the initiation of alternative budget programmes or provided minimal benefit to society. Another goal of assessing the effectiveness of budget expenditures is to take into account objective economic indicators during budget planning and to reduce the weight of political factors accordingly.

The structure of public expenditures must meet the purpose of financing those goods and services that maximize the public good. Criteria for assessing the effectiveness of spending budget funds should be the justification of expenditures and their social desirability, given the level of achievement of the goals through which the choice was made in favor of a particular budget program.

The study was conducted on the basis of Public Expenditure Review methodology, which is used in particular by the World Bank, OECD, IMF to assess the effectiveness of public spending in various sectors of the economy¹²². **The process of assessing the effectiveness in this study consists of four stages:**

- 1) Determining the boundaries of the study – the study period, the list of budget programmes to be analyzed, the list of parameters and indicators to assess the effectiveness of budget expenditures;
- 2) Determining key parameters of efficiency (success) of budget programmes – according to the criteria and indicators listed in Table 1;
- 3) Determining the parameters of possible reduction of budget expenditures in general or for individual budget programs;

- 4) Determining the recommendations for optimizing state support for the restructuring of the coal industry.

The following factors will be taken into account to analyze the effectiveness of budget expenditures¹²³:

- 1) The total amount of public expenditures and the size of the state budget deficit should correspond to the planned medium-term macroeconomic parameters;
- 2) General expenditures of the state budget should be allocated to those areas in which it is possible to achieve the greatest effect on public welfare;
- 3) Public spending should be directed to those goals where the effect of their allocation exceeds the possible effect of alternative private investment;
- 4) Budget expenditures should serve the purpose of minimizing poverty in the country or at least take into account the potential positive impact on the poorest groups of the population;
- 5) When analyzing the effectiveness of budget expenditures, the ratio of current and capital expenditures should be taken into account;
- 6) The result of the analysis of the effectiveness of budget expenditures should be strengthened government's ability to carry out budget planning, finance expenditures and assess the effectiveness of such expenditures.

Therefore, public institutions must demonstrate the maximum level of transparency and accountability, which will allow reforming the necessary budget processes and programmes to achieve socially desirable results.

The World Bank emphasizes that the structure of public spending should be aimed at financing those goods and services that maximize public welfare. To assess compliance with this principle, it is proposed to use three stages, of which the first two relate to efficiency, and the third to equality¹²⁴.

The first stage is to assess the justification of government intervention in the industry, given that budget expenditures should be directed to those goods and services that the private sector is not able to provide to the required extent.

The second stage is to assess the potential impact on public welfare of similar public expenditures for alternative socially important purposes.

Finally, the **third stage** involves assessing the impact of public spending on the poorest sections of the population.

The following indicators will be used in this study to assess public welfare: the volume of coal production at state-owned enterprises and its share in current total consumption; the share of this production in GDP; number of jobs; level of profitability/unprofitableness in absolute terms.

This study will use the programme review approach used to identify "effective" and "strategic" savings¹²⁵ within individual budget programs. Effective savings are understood as the amount of reductions in budget expenditures, which is achieved through the alternative use of funds, which makes it possible to buy a similar amount of goods and services cheaper. Strategic savings are understood as the amount of budget funds released as a result of a complete refusal to buy those goods and services for which these funds are provided in the budget.

123 World Bank. Evaluating Public Spending. A Framework for Public Expenditure Review. URL: <http://documents1.worldbank.org/curated/en/509221468740209997/pdf/multi-page.pdf>

124 Ibid, p. 4.

125 Organisation for Economic Co-operation and Development. 3rd Annual Meeting of OECD Senior Budget Officials. Spending Reviews. Pp. 4–5. URL: [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO\(2013\)6&doclanguage=en](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO(2013)6&doclanguage=en).

Table 1. Indicators that will be used to assess the effectiveness of budget expenditures for the restructuring of the coal industry

Parameters	Indicators
Level of state support	Dynamics of change in the volume of direct state support (subsidizing) of the coal industry
Public investment	Dynamics of change in the share of the investment component in the budget financing of the industry (the share of budget expenditures for re-equipment of existing or opening of new mines)
Market pricing of products	<ol style="list-style-type: none"> 1. The average cost of one ton of coal mined in state-owned mines 2. Indicative price for coal products set by the government (excluding VAT and transportation)
Production	<ol style="list-style-type: none"> 1. Volume of coal production by years (2015–2019, million tons) 2. Volume of coal production in terms of subordination of enterprises (million tons)
Contribution to the production of coal products	Dynamics of change in the volume of sold coal products
Energy security	<ol style="list-style-type: none"> 1. Share of coal in the distribution of energy sources in the total primary energy supply 2. Share of coal in the structure of final energy consumption
Staff	Number of employees of state-owned mining enterprises (thousand persons)
Profitability/unprofitableness	Profit/loss of state mines and subsidies per 1 ton of production

The dynamics of changes in the size of Ukraine's public debt and the size of the state budget deficit during the study period will be used as auxiliary indicators to determine the ratio of potentially inefficient expenditures and budget borrowings.

The study will calculate the amount of budget funding for the coal industry as a whole and for each budget programme separately. Total (aggregate) budget expenditures will be analyzed to identify the correlation between the aggregate amounts of budget funds and the achieved quantitative indicators presented in Table 1.

The analysis of the effectiveness of budget expenditures in this study refers to the process aimed at developing and further implementing measures to save budget funds in view of the results achieved in previous periods from the expenditure of such funds compared to the baseline (2015).

2.2. Analysis of budget planning of expenditures

Today in the coal industry of Ukraine there are several levels of budget planning. The strategic (conceptual) level provides for long-term planning of budget expenditures in view of the strategic development goals of the entire industry, set out in the strategic (conceptual) documents approved by the government. At this level, based on the analysis of available resources and identified needs, the role and place of the industry in the future is determined.

The programme level provides for long- or medium-term budget planning given the need to achieve one or more clearly measurable indicators of industry development (production volume, profitability level, level of average wages in the industry, etc.).

The current (operational) level provides for budget planning of expenditures for the next budget period, taking into account current trends affecting the development of the industry. At this level, budget planning is based on methods approved by the government.

Let's analyze the main regulations on the basis of which the planning of budget financing of the coal industry was to be carried out, as well as the practical results of financing the relevant budget programs.

The following documents were adopted **at the strategic (conceptual) level** in the coal industry:

1. Resolution of the Cabinet of Ministers of Ukraine No. 141 of 2 March 1994 "On Approval of the Programme of Development of the Coal Industry and Social Sphere of Mining Regions for the Period up to 2005"¹²⁶. The programme had ambitious goals, including bringing coal production in 2005 to 155-158 million tons and in 2015 to 170 million tons. The ways of implementation included improving the financial condition of coal enterprises and the transition to market relations, improving the social sphere of mining regions and increasing the level of social protection of workers in the industry. However, the programme did not contain certain amounts of required budget funding, broken down by year.

2. Implementation of Ukrainian Coal programme¹²⁷ approved by the Resolution of the Cabinet of Ministers of Ukraine No. 1205 of 19 September 2001 was designed for 2001-2010. According to the drafters' calculations, in order to increase the volume of coal production in 2002 to 85.5 million tons with positive dynamics, the volume of budget funding in 2002 should amount to UAH 6 billion. At the second stage (2003–2010), public financial resources were to be reduced from UAH 5.2 billion in 2003 to UAH 2.4 billion in 2010, and revenues were to approach expenditures to provide a basis for more radical measures to upgrade and increase production capacity. The document contained lists of coal mining enterprises that are subject to closure, re-equipment and reconstruction with clear calculations of the required investments by year. However, as review of further documents will show, none of the planned indicators was achieved.

3. The Coal Industry Development Concept¹²⁸ approved by the Ordinance of the Cabinet of Ministers of Ukraine No. 236-r of 7 July 2005 was designed for three stages. The document contained a number of target quantitative indicators. At the first stage (2006-2010) it was planned to comprehensively solve the problem of development of coal enterprises through technical and technological modernization with subsequent privatization, as well as to put into operation production capacity of 17 million tons by completing construction of new pits and reconstruction of existing coal mining enterprises. By 2010, coal production was expected to increase to 90.9 million tons per year, and production capacity to 105.8 million tons per year. At the second stage (2011-2015) it was planned to continue the reconstruction of existing coal mining enterprises and to establish four new mines. It was planned to increase the volume of coal production to 96.5 million tons, and production capacity to 112.2 million tons per year. At the third stage (2016-2030), the volume of coal production was to reach 112 million tons by 2030. The volume of production capacity at the end of the period was to increase to 124.4 million tons.

The concept included the calculation of the necessary financial support. In particular, at the first stage it was planned to attract investments (own funds of enterprises, non-governmental investments and state budget funds) in the total amount of UAH 7.5–7.8 billion per year. At the second stage, the volume of investments was projected at the same level with a gradual reduction of state budget resources to UAH 1.8 billion per year and an increase in own funds of enterprises and non-governmental investments to UAH 6.1 billion per year. At the third stage of the coal industry development, a gradual increase in investments to UAH 8.8-9 billion per year was envisaged. Meanwhile, the amount of public funds was

126 Cabinet of Ministers of Ukraine. Resolution No. 141 of 2 March 1994 "On Approval of the Programme of Development of the Coal Industry and Social Sphere of Mining Regions for the Period up to 2005". URL: <https://zakon.rada.gov.ua/laws/show/141-94-%D0%BF#Text>

127 Cabinet of Ministers of Ukraine. Resolution No. 1205 of 19 September 2001 "On Approval of the Ukrainian Coal Programme". URL: <https://zakon.rada.gov.ua/laws/show/1205-2001-%D0%BF#Text>

128 Cabinet of Ministers of Ukraine. Ordinance No. 236-r of 7 July 2005 "On Approval of the Coal Industry Development Concept". URL: <https://www.kmu.gov.ua/npas/18609693>

to gradually decrease to UAH 0.5 billion per year, and from other sources – to UAH 8.5 billion per year.

4. The Coal Industry Reform Concept approved by the Ordinance of the Cabinet of Ministers of Ukraine No. 737-r of 14 May 2008¹²⁹ recognized that the previously adopted regulations did not provide the necessary pace of reform. With the total needs of the public sector of the coal industry for investment funds in 2001-2007 at the level of UAH 37.5 billion, the actual amount of funding from the state budget amounted to UAH 24.3 billion, or 65% of the required amount¹³⁰. Successful implementation of the measures envisaged by the concept was to ensure an increase in coal production in 2010 to 90.9 million tons, in 2015 – to 110.3 million tons and an increase in production capacity from 108.1 million tons in 2010 and to 122.5 million tons in 2015. To implement this concept, it was planned to attract UAH 650-700 million to the industry at the expense of all sources of investment during 2008–2011 for every 1 million tons of increase in coal production capacity. In the future, for coal production in the amount of 100-110 million tons per year, the volume of capital investment should annually amount to UAH 300-350 million per 1 million tons of reproducible capacity (at base prices)¹³¹.

5. The Energy Strategy of Ukraine for the period up to 2030¹³² approved by the government ordinance No. 1071-r of 24 July 2013 recognized that reform at the expense of the state is impossible not only because of the large amount of necessary investments, but also because of lack of management resources for simultaneous modernization in many mines and lack of experience in significantly improving the efficiency of mines in the public sector. The document stated that despite the increase in public funding for the coal industry between 2001 and 2010 by almost four times (from UAH 2 billion to UAH 7.7 billion, which was 2% of all government expenditures), coal production decreased by more than 10%, indicating a very inefficient use of budget support¹³³. In 2010, the cost of production of previously privatized coal mining enterprises was more than twice lower than the cost of production at state-owned mines, and labor productivity was twice as high¹³⁴.

The strategy stated that coal production in Ukraine could be increased to 115 million tons per year (including steam coal – to 75 million tons) while bringing the industry to break-even level and eliminating subsidies as a result of attracting private investment (including foreign investment). The maximum additional economically justified volumes of steam coal production can amount to 30 million tons per year with an investment of about UAH 50 billion. This strategy did not contain a clear description of the potential budget expenditures for reforming the coal industry.

In 2016, in order to effectively manage the allocations provided in the state budget to support the coal industry, the Ministry of Energy and Coal Industry set up a sectoral commission to distribute and ensure effective management of budget funds under state programmes for the coal industry, the key spending unit of which is the Ministry of Energy and Coal Industry¹³⁵.

6. The document that replaced the previous one, the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness", was approved by the government ordinance No. 605-r of 18 August 2017¹³⁶. In the current strategy, one of the intermediate goals is to achieve a level of coal production that will provide consumers with nationally produced fuel. This strategy was the first document to provide for a planned reduction in coal production and consumption (from 27.3 million tons of oil equivalent in 2015 to 12 million tons of oil equivalent in 2035, while the share of coal among primary energy sources was to decrease from 30.4% to 12.5%) given the pace of implementation of electricity and heat generation from RES.

129 Cabinet of Ministers of Ukraine. Ordinance No. 737-r of 14 May 2008 "On Approval of the Coal Industry Reform Concept". URL: <https://www.kmu.gov.ua/npas/133581567>

130 Ibid.

131 Ibid.

132 Cabinet of Ministers of Ukraine. Ordinance No. 1071-r of 24 July 2013 "On Approval of the Energy Strategy of Ukraine for the period up to 2030". URL: <https://zakon.rada.gov.ua/laws/show/n0002120-13#Text>

133 Ibid, p. 65.

134 Ibid, p. 68.

135 Ministry of Energy and Coal Industry of Ukraine. Order No. 90 of 17 February 2016. URL: <https://zakon.rada.gov.ua/rada/show/v0090732-16#Text>

136 Cabinet of Ministers of Ukraine. Ordinance No. 605-r of 18 August 2017 "On Approval of the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness". URL: <https://zakon.rada.gov.ua/laws/show/605-2017-%D1%80#Text>

7. The Concept of Coal Industry Reform and Development for the Period up to 2020 approved by the government ordinance No. 733-r of 24 May 2017¹³⁷ summed up the implementation of the Ukrainian Coal programme, the actual volume of public funding of which amounted to almost 31% of the planned volume. The implementation of the programme was to ensure coal production in 2017 at state-owned mines at the level of 6.3 million tons, in 2018 at the level of 8.7 million tons, in 2019 and 2020 at the level of more than 10 million tons. In fact, in 2019, a little more than 3.5 million tons of coal were mined in state-owned mines (of which 2.7 million tons was steam coal). This document did not contain the goals and measures of the state policy on the private segment of the coal sector, focusing only on a relatively small segment of state-owned coal enterprises.

The results of the review of the documents on the basis of which the long-term planning of budget expenditures was to be carried out and the preparation of relevant annual budget programmes allow us to conclude that despite the developed targets and calculations of public funding, the government and parliament over the past almost 30 years have failed to take the necessary measures to halt the decline of the coal industry, complete the restructuring of individual coal mines, and reduce state support for the industry.

In fact, despite the adoption of new conceptual documents each time, the government adhered to the “leave the situation unchanged” scenario, which provided for limited state support for partial cost coverage and almost no state support for technical re-equipment of enterprises. As a result, the state budget funds, mostly in insufficient amounts, were directed only to measures for labor protection, environmental protection, enterprise restructuring and social support for laid-off workers. Separate mention should be made of the unsatisfactory planning of the coal industry development in terms of forecast indicators of coal production: regardless of the previous conclusions about the catastrophic state of the industry, the government in each subsequent document set unrealistic goals and production figures for subsequent periods.

The reduction in the number of coal mining enterprises to the current level was due to the bankruptcy or physical closure of some mines in the absence of the necessary funding for their modernization. The state in which the coal industry found itself is the result of unrealistic forecasts and goal setting without taking into account its development trends, complicated by the chronic lack of the necessary budget funds to achieve independence from coal imports. According to the authors of the Concept of Coal Industry Reform and Development for the Period up to 2020, as of 2017, almost 96% of mines operated for more than 20 years without reconstruction, and two thirds of 7,000 units of basic equipment fully fulfilled their standard service life and needed immediate replacement¹³⁸. This situation indicates that the government has higher-priority areas of investment, although it contradicts the goals set out in the strategic documents for the development of the industry. Thus, in fact, state funding of the coal industry was carried out manually on a residual basis without adherence to the action plans developed and approved by strategic documents.

In order to develop **medium-term development programs**, the Cabinet of Ministers of Ukraine Resolution No. 621 of 26 April 2003 “On Development of Forecast and Programme Documents for Economic and Social Development and Drafting of the Budget Declaration and State Budget” defined a typical structure for forecasting economic development for five years¹³⁹. The components of such a document are the forecast of the situation on the domestic and foreign markets of the main types of goods and services in the industry, as well as the baseline scenario of the industry development, taking into account the main trends and factors that will determine them. On the basis of such a development program, expenditure planning should be carried out in the coal industry as well, but no such forecasts were made for coal mining.

The analysis of the **current (operational) budget planning** in the industry based on the study of expenditures financed by budget programs, carried out by the National Security and Defense Council of Ukraine, leads to other conclusions. According to the Decision of the National Security and Defense Council “On the

137 Cabinet of Ministers of Ukraine. Ordinance No. 733-r of 24 May 2017. “On Approval of the Concept of Coal Industry Reform and Development for the Period up to 2020”. URL: <https://zakon.rada.gov.ua/laws/show/733-2017-%D1%80#Text>

138 Ibid.

139 Cabinet of Ministers of Ukraine. Resolution No. 621 of 26 April 2003 “On Development of Forecast and Programme Documents for Economic and Social Development and Drafting of the Budget Declaration and State Budget.” URL: https://ips.ligazakon.net/document/view/KP030621?an=1683&ed=2020_09_09

State and Prospects of Development of the Coal Industry and Urgent Measures to improve Occupational Safety in this Area"¹⁴⁰ enacted by Presidential Decree No. 685/2008 of 5 August 2008 (now repealed), the government had not taken systematic, effective measures to restructure the coal industry at that time. There was no reform of economic relations in the industry to implement modern economic mechanisms as well. Incentives for public-private partnerships, as well as their legal support to attract investment, were also not created. The National Security and Defense Council has recognized the state of industrial safety in the coal industry as unsatisfactory, and the current system of public administration, coordination and regulation of relations between economic entities in this sector as not fully in the interests of energy security of the state and in need of immediate improvement.

In 2011, the Ministry of Energy hosted a discussion of the draft concept of the State Targeted Economic Programme for the Development of the Coal Industry for 2011-2015¹⁴¹. State budget funds, own funds of enterprises and other sources were determined as sources of funding for the program. The estimated amount of funding for the programme was to be about UAH 109 billion (UAH 21–23 billion per year in 2011–2013, with a further decrease to UAH 19 billion in 2015), including UAH 29.8 billion from the state budget (UAH 6.5 billion per year in 2011-2013 with a decrease to UAH 5.3 billion in 2015). At the same time, it was envisaged to reduce subsidies to state-owned enterprises by 80% by 2014 and increase spending on social adaptation while maintaining total support for the industry at a level not exceeding the level of 2009 (Law of Ukraine "On State Budget of Ukraine for 2009" provided for a total of UAH 5.1 billion in expenditures for the Ministry of Coal Industry of Ukraine, of which UAH 982 million for the coal industry; plus UAH 903.53 million of expenditures of the special fund for restructuring¹⁴²).

It was assumed that for the further development of existing coal mining enterprises it was necessary to carry out reconstruction and technical re-equipment of 83 mines with a total production capacity of 51.6 million tons to ensure capacity growth after completion of work for 12.5 million tons, in particular by the end of 2015 – by 7.3 million tons. According to the program, the construction of the first stage of mine No. 10 Novovolynska of SE Volynvuhillia was planned to be completed in 2012, thanks to which additional capacities for 0.45 million tons of coal per year could be put into operation, but the mine has not been completed yet.

To ensure the preparation of budget programmes in Ukraine, the Rules for Compiling Passports of Budget Programmes and Reports on Implementation Thereof approved by the order of the Ministry of Finance of Ukraine No. 1098 of 29 December 2002¹⁴³, and the performance indicators of budget programmes are determined in accordance with the General Requirements for Determining the Performance Indicators of Budget Programmes approved by the order of the Ministry of Finance of Ukraine No. 1536 of 10 December 2010¹⁴⁴.

However, the availability of these regulations and full compliance with their requirements do not guarantee the allocation of the necessary amounts of budget funding. The Ministry of Energy in its letter¹⁴⁵ notes that measures for technical re-equipment and modernization of coal mining enterprises were financed from the state budget in 2012, and then, from 2013 to 2017, budget funding for the planned measures was not carried out. Resumption of funding for these purposes took place in 2018 in the amount of UAH 307.1 million, which is 4.5 times less than the minimum required level. In 2019, UAH 1 billion was provided for the commissioning of nine longwalls, but in June 2019, the costs of technical re-equipment were reduced by UAH 616.4 million to ensure the payment of wages.

The Ministry of Energy states that the lack of budget funds for 2019 for the introduction of new treatment

140 National Security and Defense Council of Ukraine. Decision "On the State and Prospects of Development of the Coal Industry and Urgent Measures to improve Occupational Safety in this Area", put into effect by Decree of the President of Ukraine No. 685/2008 of 5 August 2008. URL: <https://zakon.rada.gov.ua/laws/show/n0024525-08#Text>

141 Draft Concept of the State Targeted Economic Programme for the Development of the Coal Industry for 2011-2015. URL: http://mpe.kmu.gov.ua/minugol/control/publish/article?art_id=196451

142 Law of Ukraine "On the State Budget of Ukraine for 2009". URL: <https://zakon.rada.gov.ua/laws/show/835-17#Text>

143 Ministry of Finance of Ukraine. Order No. 1098 of 29 December 2002 "On Passports of Budget Programs". URL: <https://zakon.rada.gov.ua/laws/show/z0047-03#Text>

144 Ministry of Finance of Ukraine. Order of 10 December 2010 "On Performance Indicators of Budget Program." URL: <https://zakon.rada.gov.ua/laws/show/z1353-10#Text>

145 Ministry of Energy and Environmental Protection of Ukraine. Letter to the Accounting Chamber Ref. No.6 0/05 dated 13.01.2020 "On Provision of Information". URL: http://www.rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/796.pdf

coalfaces has led to a reduction in the front of treatment works and does not allow to increase the level of coal production to ensure energy security of the state. According to the agency, in such realities there is a decline in the level of mechanization of coal production, which leads to the replacement of cleaning combines with jackhammers, replacement of mechanized complexes with individual fastening, increasing the cost of coal products and there is a mass outflow of skilled workers, which makes it impossible to maintain the sustainable functioning of the coal industry¹⁴⁶.

For example, according to the budget request for 2016, the amount of expenditures for partial coverage of costs from the cost of commercial coal products amounted to UAH 3.5 billion and for repayment of wage arrears for previous years – UAH 840 million. In fact, UAH 1.4 billion was allocated from the state budget to pay the current salary and UAH 500 million to repay the arrears. In 2017, instead of UAH 2.9 billion, UAH 2.1 billion was received from the state budget, which led to a debt of UAH 365.1 million, which had to be repaid by expenditures provided for in the 2018 budget. The same situation arose in 2019¹⁴⁷.

In 2017, amendments to the state budget were adopted twice, which increased expenditures under the budget programme "State Support of Coal Mining Enterprises for Partial Coverage of Costs of Finished Commodity Coal Products" by UAH 559 million, and increased funding for the coal industry by UAH 300 million.

In its report for 2017, the Accounting Chamber notes: "analysis of the regulatory framework showed that the issue of restructuring of the coal industry at the level of programme regulation is currently determined only declaratively, which does not contribute to the effective and efficient implementation of measures in this area"¹⁴⁸. In addition, it was noted that the process of planning state budget expenditures for the restructuring of the coal industry in 2014-2016 was imperfect and insufficiently substantiated. It was also complicated by the lack of an approved state or sectoral programme and, accordingly, the lack of specific indicators of funding for the industry¹⁴⁹. Such conclusions of the state collegial body, which controls the receipt of funds in the state budget and their use, suggest that a full-fledged planning based on achievable reasonable performance criteria for development and reform of the coal industry in this period was not carried out.

In 2018, amendments to the budget (Law No. 2513-VIII of 13.07.2018) increased the amount of budget allocations for the payment of wages to miners by UAH 1.4 billion. In addition, the government decided to redistribute expenditures three times a year to ensure the payment of wages due to an increase in the cost of partial coverage of the cost of commercial coal products by a total of UAH 240.3 million.

In 2019, according to the budget request, the amount of budget funds for partial coverage of costs from the cost of commercial coal products amounted to UAH 4.2 billion. Under the budget programme "Restructuring of the Coal Industry" it was expected to spend UAH 1.63 billion (including measures for technical re-equipment and modernization of coal mining enterprises – UAH 1 billion and UAH 630 million of current expenditures), which is only 15% of the required amount¹⁵⁰. At the same time, the government seven (!) times during the year adopted a decision to increase expenditures for the payment of wages and payment of arrears to employees of coal mining companies. Along with this, the Law of Ukraine "On Amendments to the Law of Ukraine "On the State Budget of Ukraine for 2019" provided for an increase in expenditures under the budget programme "Restructuring of the Coal Industry" by UAH 1 billion¹⁵¹.

An audit by the Accounting Chamber found that in the first half of 2019, budget allocations under the budget programme "Restructuring of the Coal Industry" amounted to UAH 846 million, which coal mining

146 Ibid.

147 Ibid.

148 Accounting Chamber of Ukraine. Report on the results of the audit of the efficiency of the use of state budget funds provided to the Ministry of Energy and Coal Industry of Ukraine for the restructuring of the coal industry. Approved by decision of the Accounting Chamber No. 11-2 of 16 May 2017. P.7. URL: http://rp.gov.ua/upload-files/Activity/Collegium/2017/11-2_2017/zvit_11-2_2017.pdf

149 Ibid, p. 10.

150 Ministry of Energy and Environmental Protection of Ukraine. Letter to the Accounting Chamber Ref. No.6 0/05 dated 13.01.2020 "On Provision of Information". URL: http://www.rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/796.pdf

151 Ibid.

companies used in full to pay for labor and make mandatory payments related to the payment of salary¹⁵².

It is worth noting that in order to implement the action plan for the implementation of the Concept of Coal Industry Reform and Development for the Period up to 2020 approved by the government ordinance No. 733-r of 24 May 2017, a decision was adopted by the ordinance of the Cabinet of Ministers of Ukraine No. 1019-r of 6 December 2017 to establish a state enterprise "National Coal Company". At the same time, due to the fact that the Concept of Coal Industry Reform and Development for the Period up to 2020 (approved by the ordinance of the Cabinet of Ministers of Ukraine No. 733-r of 24 May 2017) was not implemented, the Ministry of Energy prepared and submitted to the government a draft ordinance, which provides for the abolition of the current Concept and the decision on the establishment of the State Enterprise "National Coal Company" as such, which were not implemented. It should be noted that the government did not approve any action plans for the implementation of the mentioned Concept for 2018 and 2019¹⁵³.

The Resolution of the Cabinet of Ministers of Ukraine No. 80 of 23 January 2019 "On Approval of the Procedure for the Use of Funds provided in the State Budget for the Restructuring of the Coal Industry"¹⁵⁴ in order to determine the amount of budget funds required to partially cover the unprofitable cost of coal envisaged that coal mining enterprises prepare, taking into account the guidelines developed by the Ministry of Energy, projected technical and economic performance indicators and action plan to improve production and reduce costs of commercial coal products, and submit them to the Ministry of Energy in the prescribed manner. The annual or monthly amount of budget funds per 1 hryvnia of projected losses for coal mining enterprises is determined by the following formula:

$$P = B_i : Z_i,$$

where B_i is annual or monthly amount of budget funds in accordance with the state budget, UAH thousand; Z_i is total projected losses for the year or the corresponding month, UAH thousand.

According to the Procedure for the Use of Funds provided in the State Budget for the Restructuring of the Coal Industry, the purpose of the budget programme "Restructuring of the Coal Industry" is:

1. return to the state budget of funds allocated to the Ministry of Energy to repay arrears of wages to employees of the coal industry;
2. ensuring domestic production of marketable coal products by paying wages and making mandatory payments related to the payment of wages, payment of electricity consumed, as well as repayment of arrears of wages;
3. implementation of measures for technical re-equipment and modernization of coal mining enterprises in 2019;
4. payment of expenses under electricity supply contracts;
5. maintenance of mine No. 10 Novovolynska in safe and accident-free condition¹⁵⁵.

Review of the content of the passport of the budget programme "Restructuring of the Coal Industry" for 2020¹⁵⁶ gives grounds to claim that the government understands restructuring as two directions:

152 Accounting Chamber of Ukraine. Report on the results of the audit of the efficiency of the use of state budget funds allocated to the Ministry of Energy and Coal Industry of Ukraine for state support of coal mining enterprises to partially cover the costs of finished coal products. Approved by the decision of the Accounting Chamber No. 32-2 of 12 November 2019. P. 27. URL: https://rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/Zvit_32-2_2019.pdf

153 Ibid.

154 Cabinet of Ministers of Ukraine. Resolution "On Approval of the Procedure for the Use of Funds provided in the State Budget for the Restructuring of the Coal Industry" No. 80 of 23 January 2019. URL: <https://zakon.rada.gov.ua/laws/show/80-2019-%D0%BF#Text>

155 Ibid.

156 Ministry of Energy of Ukraine. Order on approval of the passport of the budget programme under KPVK 2401590 for 2020 No. 526 of 20 August 2020. URL: <http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245466454>

- ▶ remuneration for work labor and mandatory payments, in particular to repay arrears of wages (UAH 3.497 billion);
- ▶ maintenance of mine No. 10 Novovolynska in a safe condition (UAH 65 million is envisaged).

The initial version of the passport of the mentioned budget programme instead of financing mine No. 10 Novovolynska provided for "measures for technical re-equipment and modernization of state coal mining enterprises", to which it was supposed to direct UAH 383.6 million.

This approach to budget planning for the coal industry means that the **government understands restructuring primarily as the process of covering losses from the production of marketable products without any incentive to reduce such losses for individual coal companies**. In such circumstances, coal companies are not interested in reducing losses, but on the contrary, seek to obtain maximum budget funds for current expenditures. They also cannot count on additional budget funding to modernize production due to lack of necessary funds in the budget.

This conclusion is confirmed by the analysis of the Law of Ukraine "On Restoration of Solvency of State Coal Mining Enterprises" adopted in 2017¹⁵⁷, which provides that enforcement proceedings and enforcement measures against state-owned coal mining enterprises are subject to suspension by 1 January 2022, and bankruptcy cases of state-owned coal mining enterprises are not initiated by 1 January 2022. In other words, this law postponed the negative consequences of the insolvency of state-owned mines, but did not address the issue of improving budget planning for financing the industry, increasing production efficiency or increasing production at promising mines.

Decree of the President of Ukraine "On Urgent Measures to Reform and Strengthen the State" No. 837/2019 of 8 November 2019¹⁵⁸ provided, in particular, for the need to develop and approve by 30 April 2020 the concept of coal industry reform and an action plan for its implementation. This plan should include the preparation and implementation of the privatization of promising coal mines, as well as the restructuring (conservation) of unpromising ones. It follows from the decree that at that time there was neither an effective concept of reforming the coal industry, nor a phased action plan (or state target program) with appropriate budget funding, although the first concept of reforming the industry was approved by the government in 2005. On the other hand, the decree effectively equates the restructuring and conservation of mines, although, as noted, the restructuring should primarily be aimed at improving the economic performance of coal enterprises.

From all the above it can be concluded that the **volumes and directions of budget financing of the coal industry during 2015-2019 did not fully correspond to effective at that time programme and strategic documents**. The forecast goals set in concepts, strategies, and state programmes were regularly not met. **The most of the funds was used to cover arrears of wages to miners, for which budget expenditures were adjusted from time to time and in the current mode by reducing the investment component of restructuring financing**. Obviously, this approach does not meet the principles of integrated budget planning and cannot ensure sustainable development of the industry in accordance with the planned parameters.

The results of the implementation of budget programmes (in particular the programme "Restructuring of the Coal Industry") serve as a clear and unambiguous indicator of the effectiveness of the goals proclaimed in the concepts and action plans for reforming the coal industry. It is obvious that the lack of funding for development or its actual reduction during the budget period led to further degradation of coal enterprises, as well as limited opportunities for break-even coal production in the future. This clearly contradicts the goals set out in each of the reviewed concepts and at the same time calls into question the expediency of further financing of the coal industry regardless of the set goals of its development and clear quantitative indicators of their achievement.

157 Law of Ukraine "On Restoration of Solvency of State Coal Mining Enterprises" (No. 2021-VIII of 13 April 2017). URL: <https://zakon.rada.gov.ua/laws/show/2021-19#Text>

158 President of Ukraine. Decree "On Urgent Measures to Reform and Strengthen the State" No. 837/2019 of 8 November 2019. URL: <https://zakon.rada.gov.ua/laws/show/837/2019#Text>

2.3. Analysis of budget support programmes for 2015-2020

2.3.1. Budget programmes under which funds were allocated

To analyze the cost structure in this study, nine budget programmes for 2015-2020 have been identified, which relate to the financing of the coal industry and are implemented by the Ministry of Energy¹⁵⁹. Information on the amount of financing is given in Table 2 together with the cash execution of budget programmes, except for 2020, where the target indicators are given.

Table 2. Budget programmes of the Ministry of Energy, that relate to the coal industry (2015-2020), and the amounts of allocated funds, UAH thousand

Programme code	Year	2015	2016	2017	2018	2019	2020 (c)
1101070	Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)	205712.17	106695.073	244124.73	281126.9	127899.15	659705.10
1101100	Mining rescue measures at coal mining enterprises	234411.232	263210.232	287649.23	289998.6	289162.14	290000.00
1101110	State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products	1212000.00	1372755.008	2121771.00	1072246.2		
1101520	Replenishment of working capital or increase of statutory funds of coal mining enterprises to repay overdue arrears of wages to employees, formed as of 1 January 2015	200000.00	500000.00				
1101530	State support for the construction of Mine No. 10 Novovolynska	145833.118	50000.00	70248.00	34648.0	61873.80	
1101160	Measures for labor protection and improving occupational safety at coal mining enterprises			99401.56			
1101700	Prevention of an emergency situation in connection with the flooding of mines of Pervomaisk-Stakhaniv coal mining region (2017), Ensuring payment for consumed electricity by state coal mining enterprises in 2019 (2019)			9830.59		445273.66	

1101590	Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)				1671149.7	3268617.17	4962746.1
1101710	Repayment of arrears of wages to employees of the coal industry				100000.0		
	Total for the year	1997956.52	2292660.31	2833025.10	3449169.4	4192825.92	5912451.2

Source: Ministry of Energy¹⁶⁰, State Budget 2020 (as amended¹⁶¹)

During this period, the amount of public financing for the coal industry has more than doubled. If we compare the total amount of financing of the industry with the inflation rate (consumer price index) for this period (the indicator for 2020 is taken into account as of 31 October in annual terms¹⁶²)¹⁶³, which is a total of 160%, the expenditures on coal industry slightly outpaced the growth of prices in the country. The minimum wage for this period increased from UAH 1,218 in 2015 to UAH 5,000 as of 1 September 2020¹⁶⁴. Given that the payment of wages was the bulk of expenditures on the industry, it is clear that **the nominal increase in wages largely led to an increase in expenditures on the coal industry.**

Financing of wage arrears to employees of state-owned enterprises in 2015–2020 fluctuated at the level of 70–80% of all expenditures.

160 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

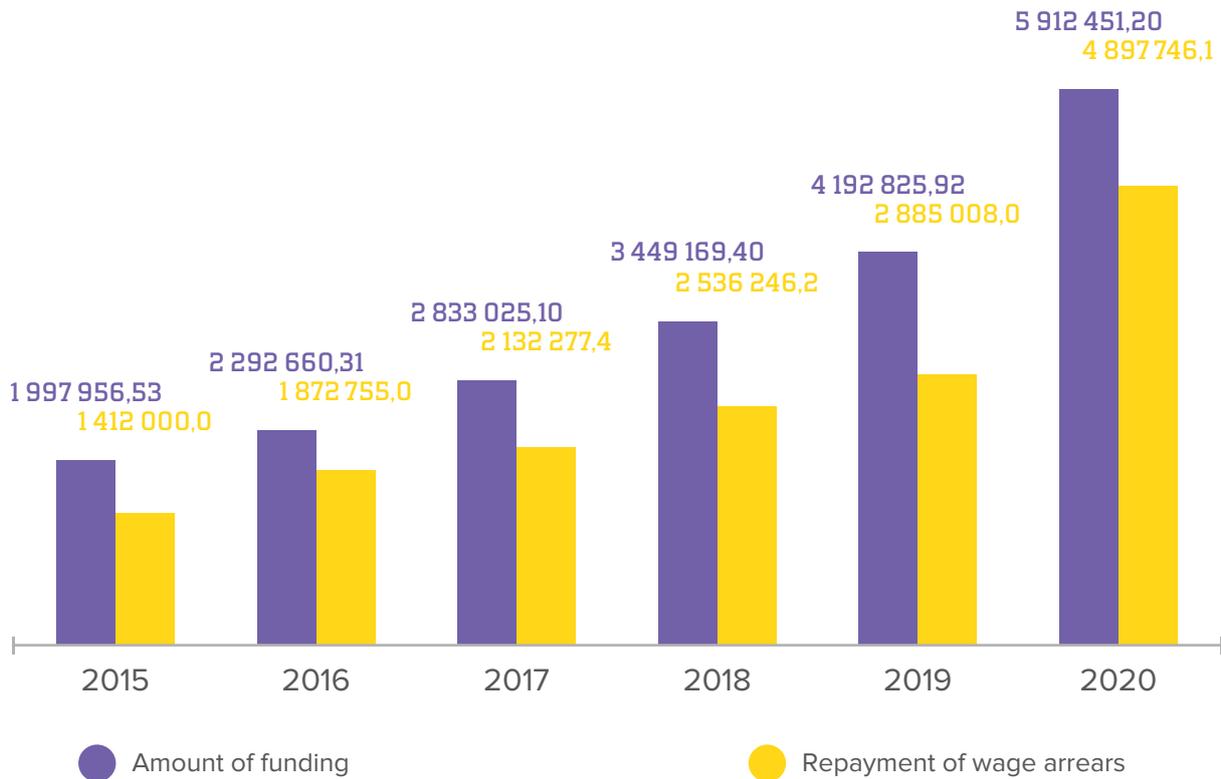
161 Verkhovna Rada. Law of Ukraine "On Amendments to the Law of Ukraine "On the State Budget of Ukraine 2020"". URL: <https://zakon.rada.gov.ua/laws/show/1006-IX#Text>

162 National Bank of Ukraine. Comment by the National Bank on the inflation rate in October 2020. URL: <https://bank.gov.ua/ua/news/all/komentar-natsionalnogo-banku-schodo-rivnya-inflyatsiyi-u-jovtni-2020-roku>

163 State Statistics Service of Ukraine. Consumer price indices in 1991–2019. URL: http://www.ukrstat.gov.ua/operativ/operativ2006/ct/cn_rik/isc/isc_u/isc_m_u.htm

164 Minimum wage in Ukraine from 2000 to 2020. URL: https://bankchart.com.ua/spravochniki/indikatory_rynka/lowest_salary

Fig. 8. Share of expenditures on payment of wage arrears from the total amount of financing of the industry, UAH thousand



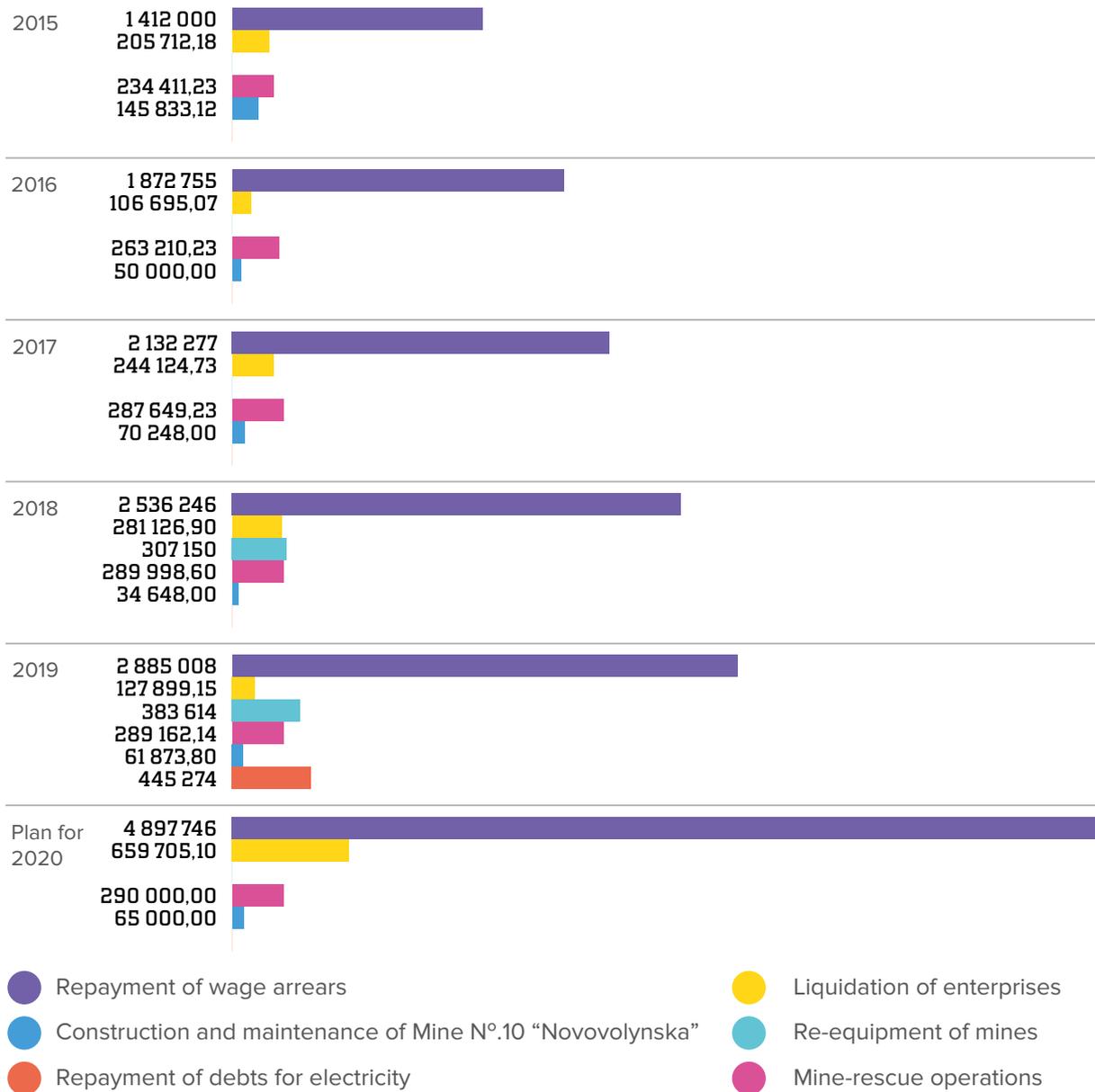
Source: Ministry of Energy¹⁶⁵

This trend (predominance of expenditures on payment of wage arrears) is also observed in terms of the final destination of all funds allocated during each budget year to support the coal industry.

Support for the coal industry increased mainly through the payment of wage arrears, while other expenditures remained at about the same level each year. The increase in expenditures in 2019 was also caused by payments to repay the debts of mines for electricity. There is a sharp increase (by about UAH 2 billion) in expenditures to repay wage arrears in 2020, as well as an increase in expenditures for liquidation of mines.

¹⁶⁵ Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

Fig. 9. Support of the coal mining industry by areas (2015–2020), UAH thousand



Source: Ministry of Energy¹⁶⁶

In 2015–2020, only twice (2018 and 2019) funds were allocated for re-equipment and modernization of coal mining enterprises in the total amount of about UAH 690 million. For comparison, in 2015 alone, UAH 1.412 billion was allocated to repay wage arrears. Such realities of budget financing of the industry give a certain idea about the prospects of its development under the condition of observing the baseline scenario – "everything remains as it is".

Relatively stable expenditures during the period studied are areas of liquidation of unprofitable mines and mining rescue measures.

It is also worth noting that the funds under budget programmes 1101700¹⁶⁷ and 1101710¹⁶⁸ were allocated from the reserve fund of the state budget. Under the programme 1101710 funds were allocated on a revolving basis.

166 Ibid.

167 "Prevention of an emergency situation in connection with the flooding of mines of Pervomaisk-Stakhaniv coal mining region" (2017), "Ensuring payment for consumed electricity by state coal mining enterprises in 2019" (2019).

168 "Repayment of arrears of wages to employees of the coal industry".

2.3.2. Assessment of the effectiveness of state support in general

To conduct a comprehensive assessment of the effectiveness of the use of budget funds allocated to support the coal industry during the study period (2015-2019), the total state support and funding of individual programmes will be compared with indicators according to the methodology of this study (see section 2.1.).

Since a number of programmes have a clear purpose and/or funds under it were not allocated throughout the study period, the following programmes were identified as the subject of programme-by-programme evaluation:

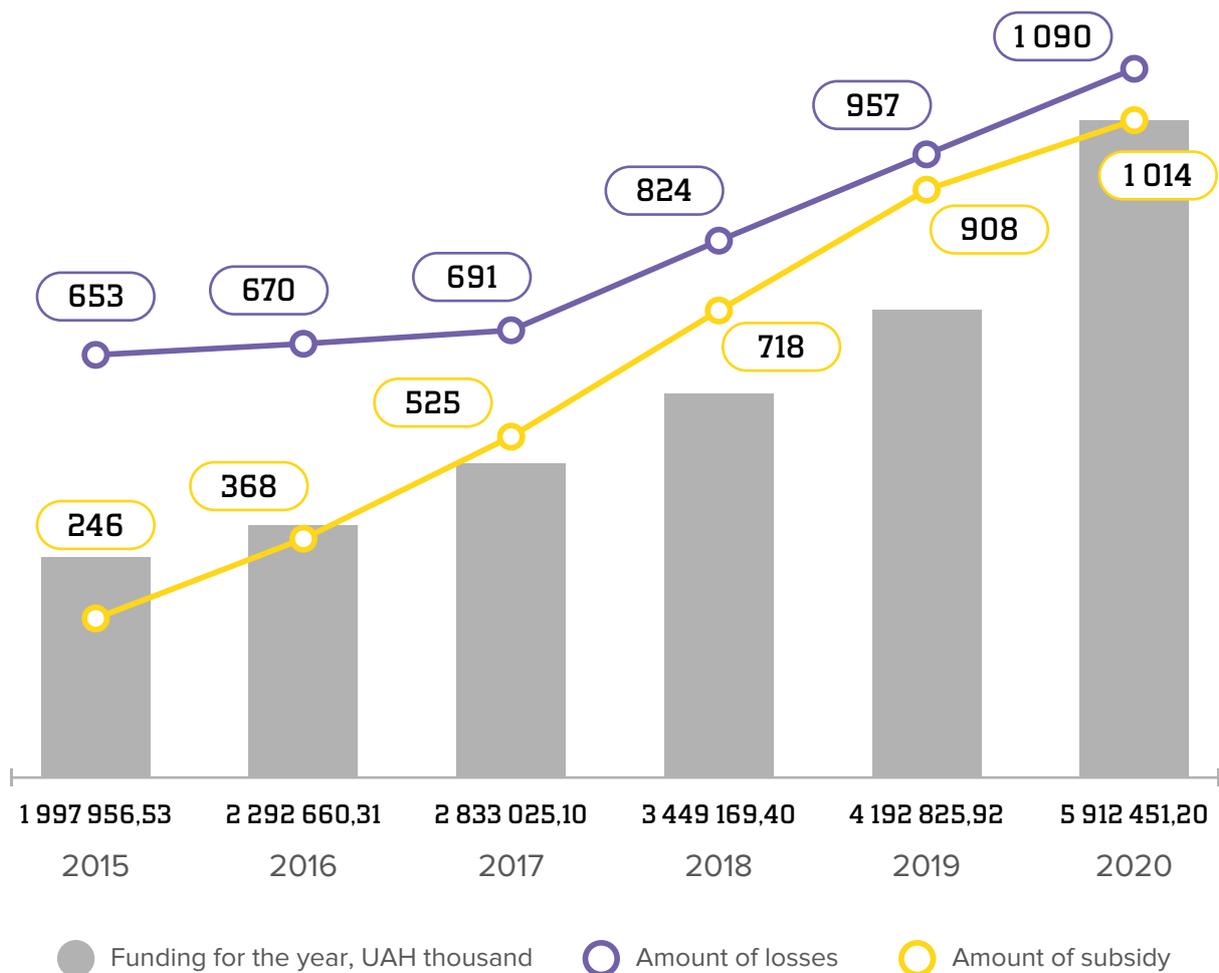
- ▶ 2401070 (until 2019 – 1101070) "Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation" (2015-2017), in 2018-2019 the title was changed to "Liquidation of unprofitable coal mining and coal processing enterprises", and in 2020 the budget programme was renamed "Measures to liquidate unpromising coal mining enterprises";
- ▶ 1101110 (closed since 2019) "State support of coal mining enterprises for partial coverage of costs from the cost of finished marketable coal products."
- ▶ 2401590 (until 2019 – 1101590) "Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry" (2018), "Restructuring of the coal industry" (2019-2020).

Data on the overall financing of the coal industry show that the dynamics of state support generally does not show a positive impact on most indicators (for a detailed analysis, see Annex 1), although there is a correlation for some indicators.

In particular, subsidies to the industry increase in proportion to losses per 1 ton of coal produced. There is also a convergence of loss curves and subsidies, and therefore, almost all the loss of enterprises from the sale of coal below cost is now covered by budget expenditures (at about 93-95%), while in 2015 – only about 38%. That is, state mines do not have their own financial reserves (including borrowed capital) to cover losses.

This indicates inefficient planning of the industry by the government, because given the almost complete absence of public capital investment, given the level of depreciation of fixed assets in the industry it is unreasonable to expect an increase in profitability of production.

Fig. 10. Loss of state mines and subsidies (UAH/t) vs. total state support



Source: Ministry of Energy^{169, 170}

Due to the increase in the cost of coal, the government is beginning to subsidize the coal industry more. Rising costs automatically reduce profits and increase enterprises' losses. There is an increase in the gap between the regulated (or contractual) selling price and the cost of coal, i.e. the share of losses that do not cover the activities of enterprises. From the beginning of 2020, the actual sale price of coal was UAH 1,950/t, but since September, state-owned enterprises have been forced to reduce the price to UAH 1,650/t, as the main buyer – PJSC "Centerenergo" – chose better financial offers from private enterprises¹⁷¹. According to the draft new Concept of Coal Industry Reform, losses per 1 ton of sold coal of state mines amounted to UAH 1,630 in the period 2015–2019, while in the first half of 2020 they jumped to UAH 2,100¹⁷².

Thus, unprofitable state-owned enterprises are forced to ask government for help.

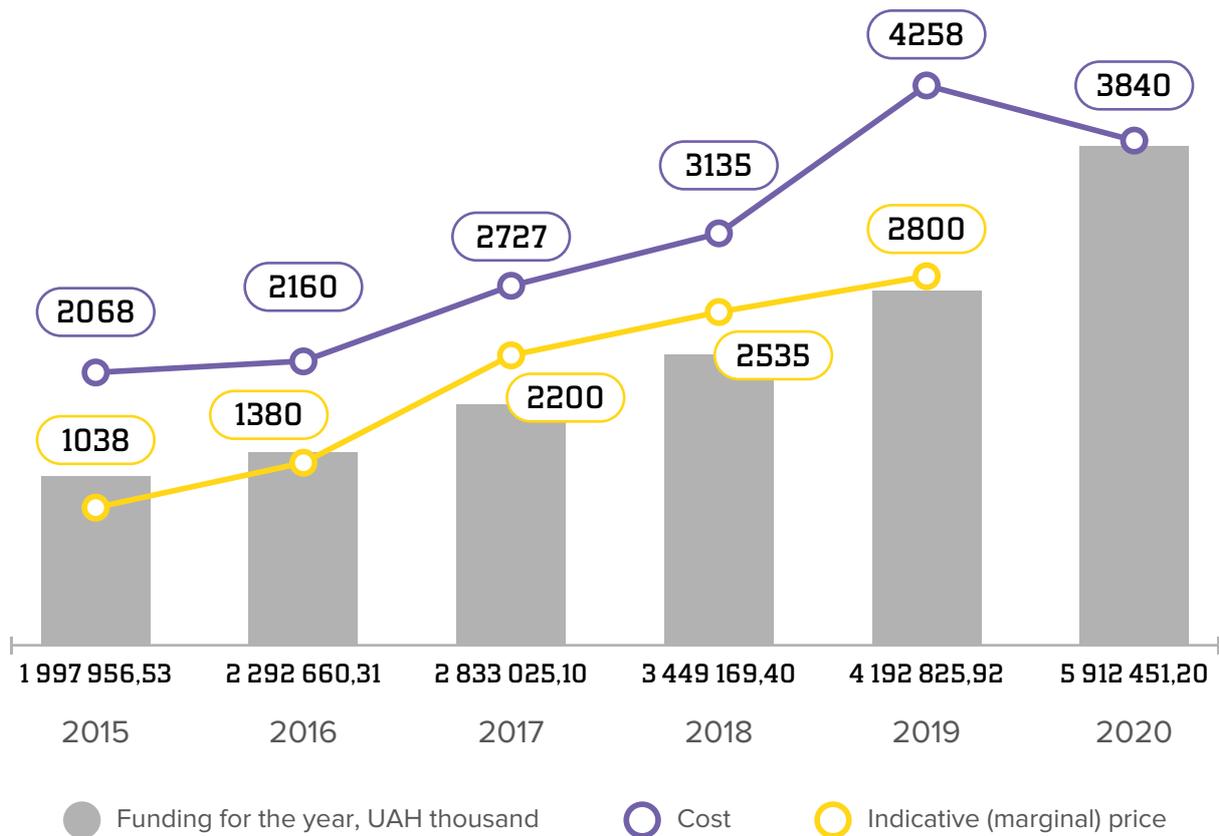
169 Official Facebook page of the Ministry of Energy. URL: <https://www.facebook.com/minecoenergy/photos/a.1096844767038465/2872039699518954/?type=3&theater>

170 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

171 Mind.ua: "Centerenergo started to buy state-owned mines' coal at prices close to market prices". URL: <https://mind.ua/news/20215484-centrenergo-pochav-kupuvati-vugillya-derzhshaht-za-nablizhenimi-do-rinkovih-cinami>

172 Ministry of Energy. Draft Concept of Coal Industry Reform. URL: <http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245482969>

Fig. 11. Average cost of coal mined in state-owned mines and marginal price for coal products (UAH/t) vs. total state support



Source: Ministry of Energy^{173, 174, 175}

Also, along with the annual increase in state support, there is a decline in production at state-owned mines. Compared to the volumes of production at state-owned enterprises, private mines show a heterogeneous dynamics of the decline in production volumes. In 2016, the production at private mines increased slightly, however, the following year it fell and stabilized for the next three years. This may be explained by economic factors such as the decline in overall coal demand in Ukraine and the economic downturn (such as this year)¹⁷⁶.

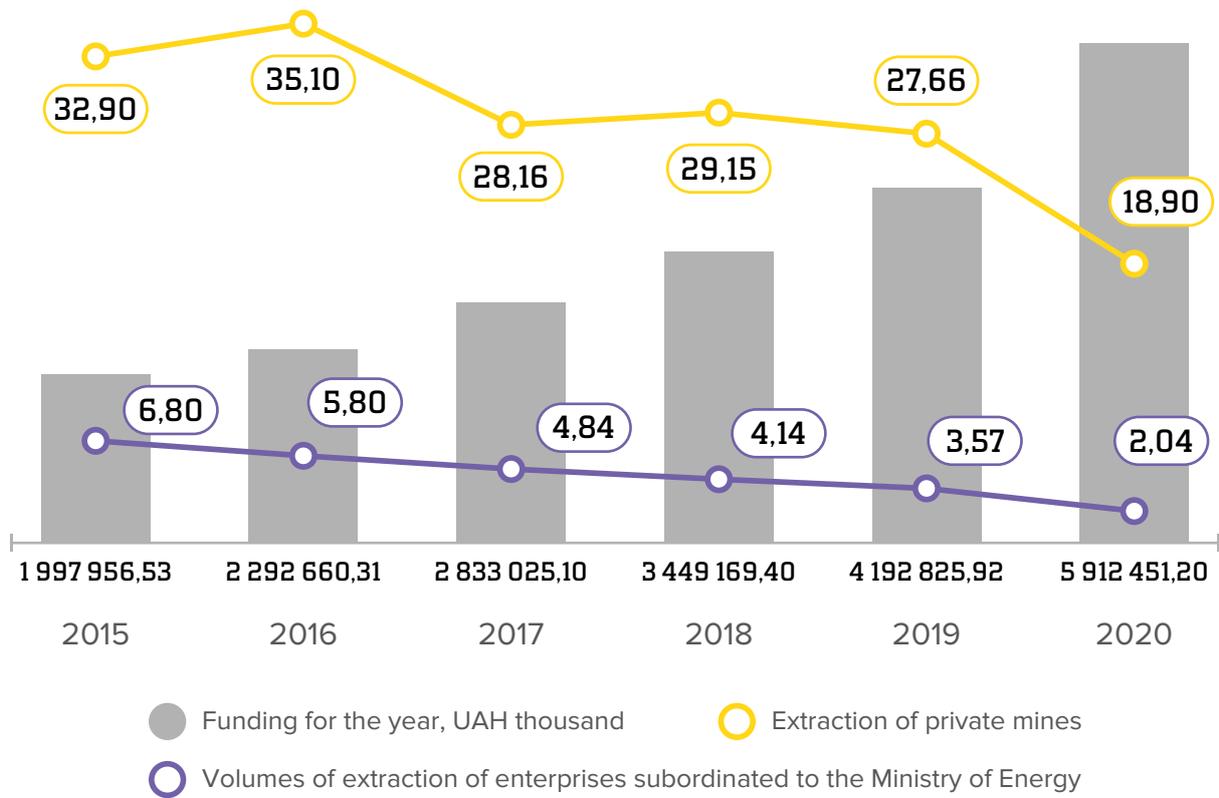
173 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

174 Ministry of Energy. Minutes of meetings to determine the marginal price for coal products. URL: <http://mpe.kmu.gov.ua/minugol/control/uk/doccatalog/list?currDir=50043>

175 Deputy Minister of Energy's Facebook page. URL: <https://www.facebook.com/photo?fbid=2822049804734673&set=pcb.2822050531401267>

176 IEA. Coal final consumption by sector, Ukraine 1990–2018. URL: <https://www.iea.org/data-and-statistics?country=UKRAINE&fuel=Coal&indicator=CoalConsBySector>

Fig. 12. Coal production* in terms of enterprise subordination (million tons) vs. total state support



* Production data for 2020 are given for nine months

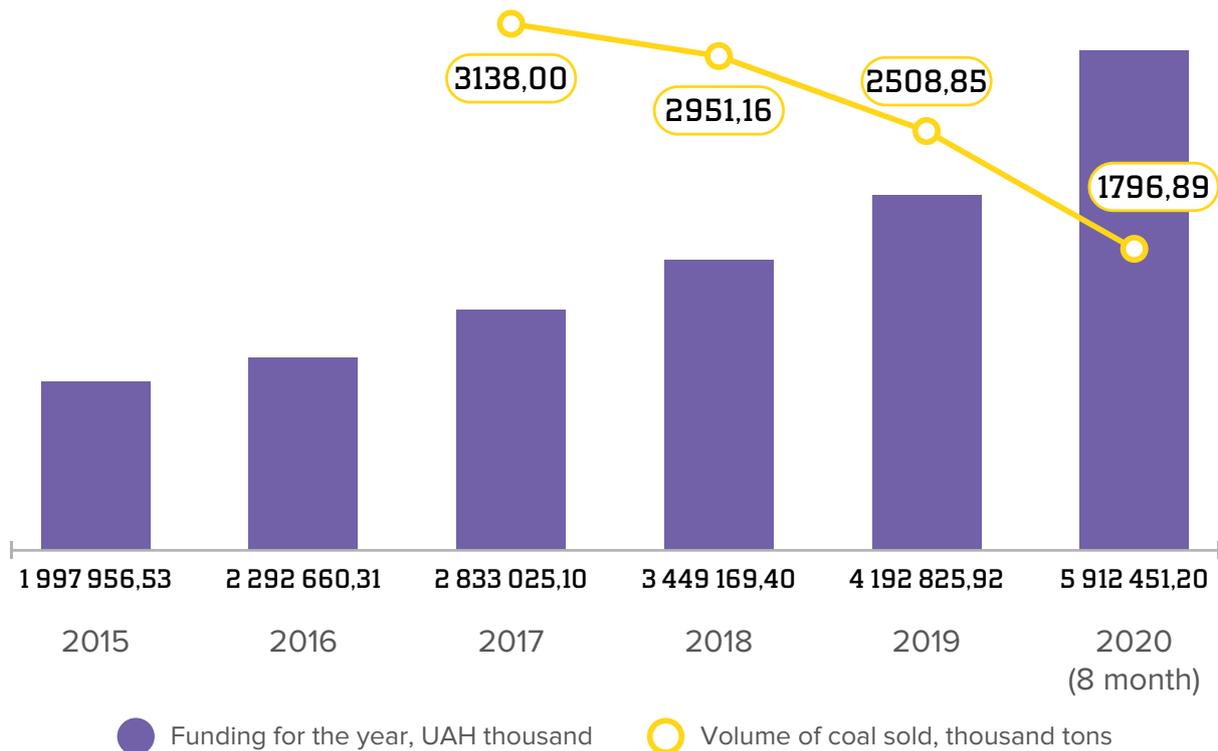
Source: Ministry of Energy^{177, 178}

There is no link between the volume of coal sold and the financing of the industry. The increase in financing, which is more to offset the losses of enterprises, is caused by a decrease in production and sales of coal products. The funds allocated for the re-equipment of mines in 2018-2019 did not cause a positive economic effect on the enterprises of the industry.

177 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

178 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

Fig. 13. Volume of sold marketable products vs. total financing of the industry



Source: Ministry of Energy^{179, 180}

The number of employees of coal mining enterprises is falling compared to the growth of state support. As the data take into account employment in mines of all forms of ownership, it can be stated that the crisis in the mining industry has affected not only the public sector. As of the end of the first half of 2020, 35,000 people worked in the state coal mining sector. And, as stated in the draft Concept of Coal Industry Reform, since 2015 the number of employees has also decreased annually by about 3,000 people and more¹⁸¹. The reasons for this phenomenon may be unsatisfactory working conditions – both in terms of remuneration and safety.

Moreover, the state social policy for coal workers, in particular the adoption and implementation of the Law "On Increasing the Prestige of Mining Work"¹⁸², did not justify itself and was mostly populist in nature.

Of all coal miners, about half work in the public sector, but at the same time the public sector accounts for about 10% of the market. This indicates low labor productivity at state-owned enterprises and is explained in particular by the fact that at some enterprises there is a reduction in the level of mechanization and the transition to manual coal mining. The private sector, with about the same number of employees, produces many times more than the public sector. Therefore, it is likely that if funding for coal mine modernization programmes begins and the course for the elimination of unprofitable mines continues, the reduction in the number of employees will continue, which will require the government to spend money effectively on their social support and retraining.

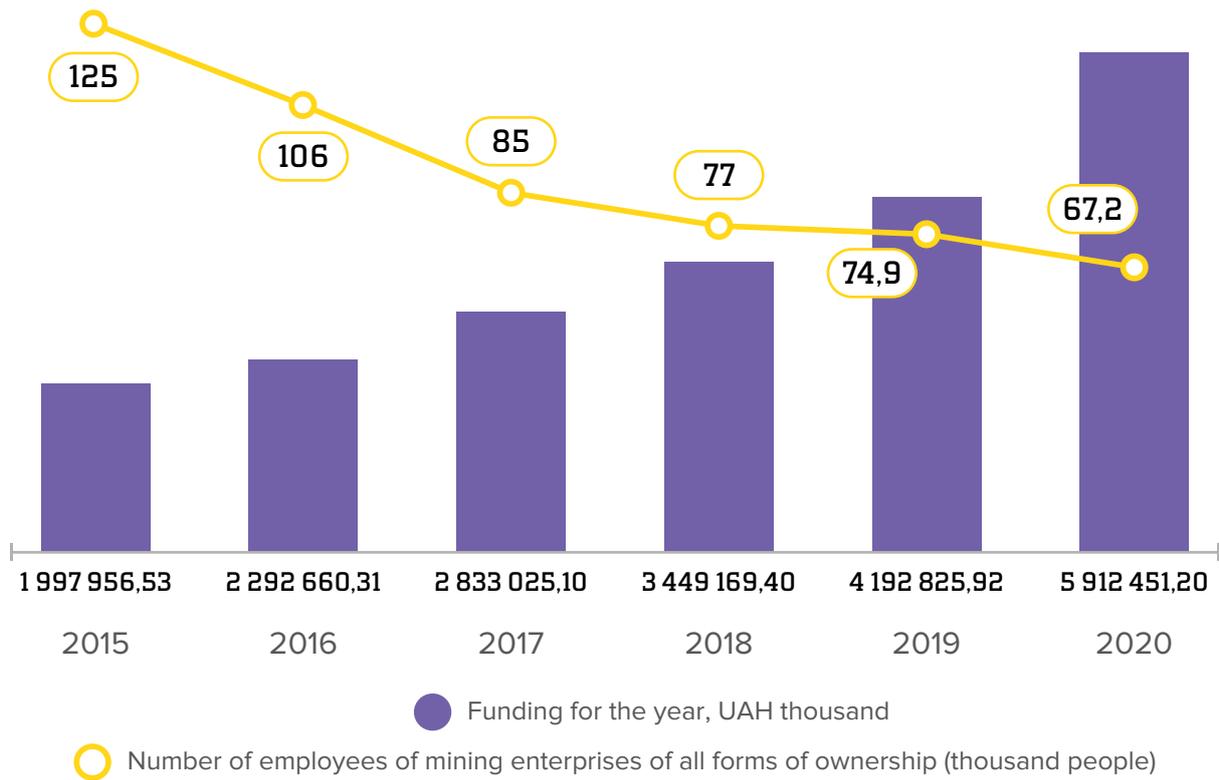
179 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

180 Ministry of Energy. Open Data Portal. Information on marketable coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

181 Ministry of Energy. Draft Concept of Coal Industry Reform. URL: <http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245482969>

182 Verkhovna Rada of Ukraine. Law of Ukraine "On Increasing the Prestige of Mining Work". URL: <https://zakon.rada.gov.ua/laws/show/345-17#Text>

Fig. 14. Number of employees in the coal industry vs. total government support



Source: Ministry of Energy¹⁸³, State Statistics Service¹⁸⁴

2.3.3. Assessment of the effectiveness of individual budget programmes

Budget programme code: 2401070 (until 2019 – 1101070)

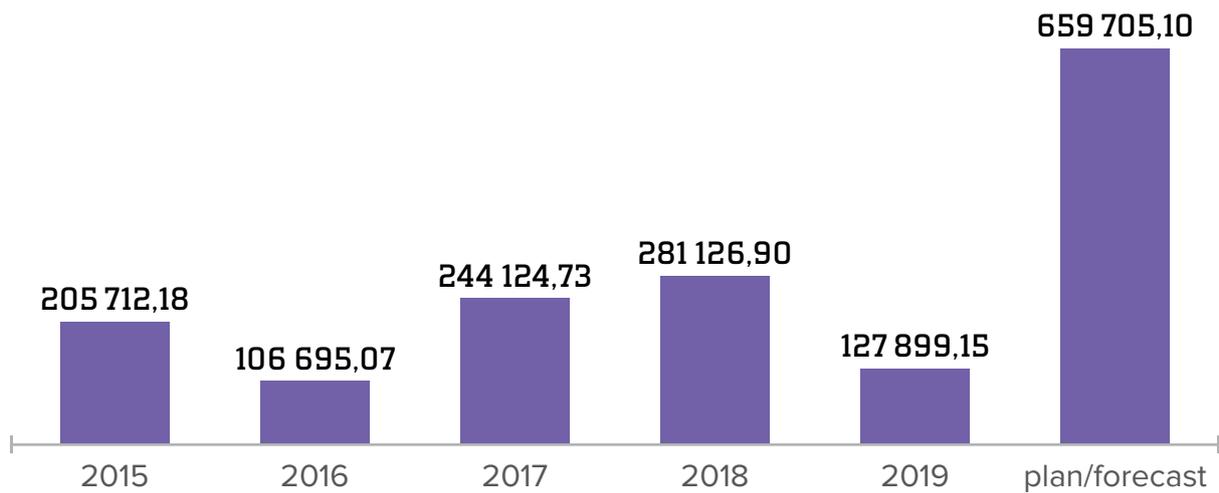
Budget programme name: During 2015-2017, the budget programme was called "Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation", from 2018-2019 the name was changed to "Liquidation of unprofitable coal mining and coal processing enterprises", and in 2020 the programme was renamed "Measures to liquidate unpromising coal mining companies."

Financing under this programme has grown steadily, with the exception of 2016 and 2019. For 2020, it is planned to increase expenditures under this programme to about UAH 659 million.

183 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

184 State Statistics Service. Average number of full-time employees by type of economic activity in industry. URL: http://www.ukrstat.gov.ua/operativ/operativ2018/gdn/Sok_pr/Arch_sok_pr_u.htm

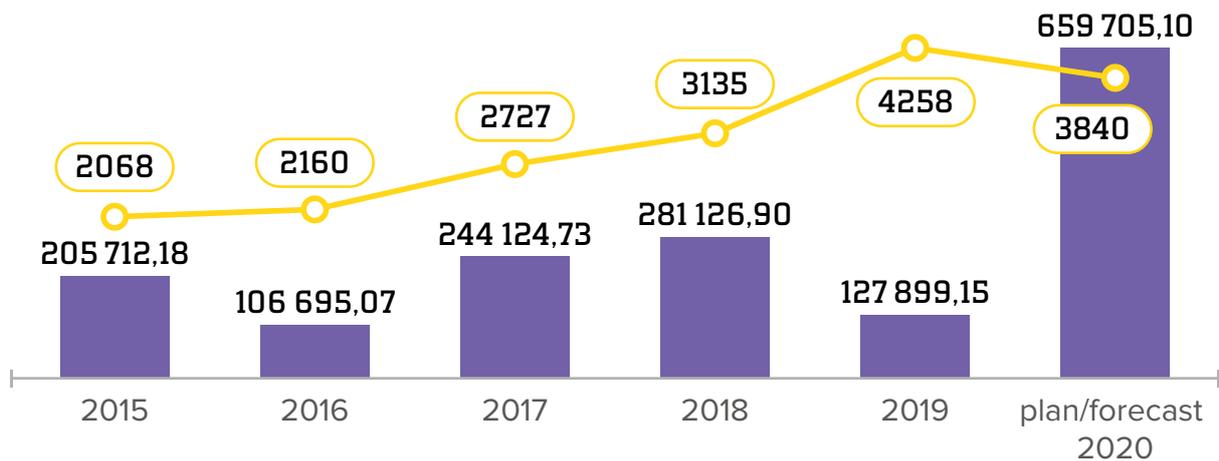
Fig. 15. Financing under mine liquidation programmes 2015–2020 (UAH, thousands)



Source: Ministry of Energy¹⁸⁵

Under this programme, there is a slight correlation between the amount of financing and some indicators (for a detailed analysis, see Annex 2). In particular, the reduction in financing in 2019 coincided with a sharp increase in the cost of coal products, which provoked higher expenditures on the subsidies. At the same time, in 2016 such an effect was not observed. The uneven correlation between the cost of production and financing under governmental liquidation programmes rather indicates that measures to liquidate coal mining enterprises did not have a positive economic effect for enterprises and the industry as a whole. The explanation for this may be that the scale of losses of coal mining companies is disproportionate to the rate of liquidation of mines.

Fig. 16. Average cost of coal mined in state-owned mines (UAH/t) vs. financing under liquidation programmes (UAH thousand)



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unp
- Cost, UAH/t

Source: Ministry of Energy^{186, 187}

185 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

186 Ibid.

187 Deputy Minister of Energy's Facebook page. URL: <https://www.facebook.com/photo?fbid=2822049804734673&set=pcb.2822050531401267>

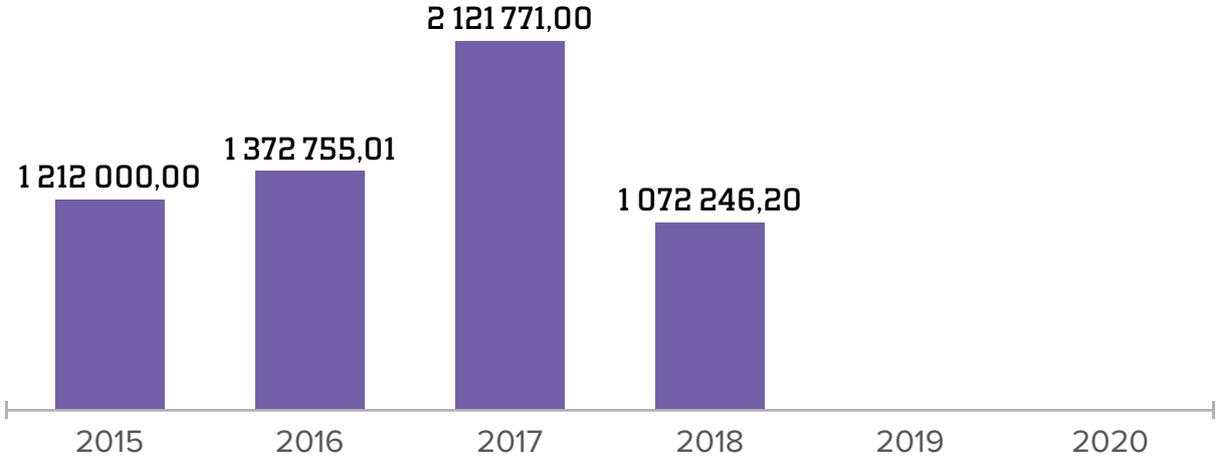
Budget programme code: 1101110 (closed since 2019)

Budget programme name: “State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products”.

The financing under this budget programme grew steadily until 2017, and then decreased in 2018 to about UAH 1 billion. According to reports on the implementation of budget programme, it was entirely aimed at repaying wage arrears¹⁸⁸. The decline in its financing in 2018 is explained by the fact that the payment of wages in subsequent years began to be financed from other programmes (in particular 1101590).

Despite the name of the budget programme, the funds under it were fully used to repay wage arrears. Therefore, this programme was in fact a subsidy programme, or "squandering" of public funds. For example, in 2018, the amount of coverage of arrears of wages to miners was revised six times.

Fig. 17. State support of coal mining enterprises (programme 1101110), UAH thousand



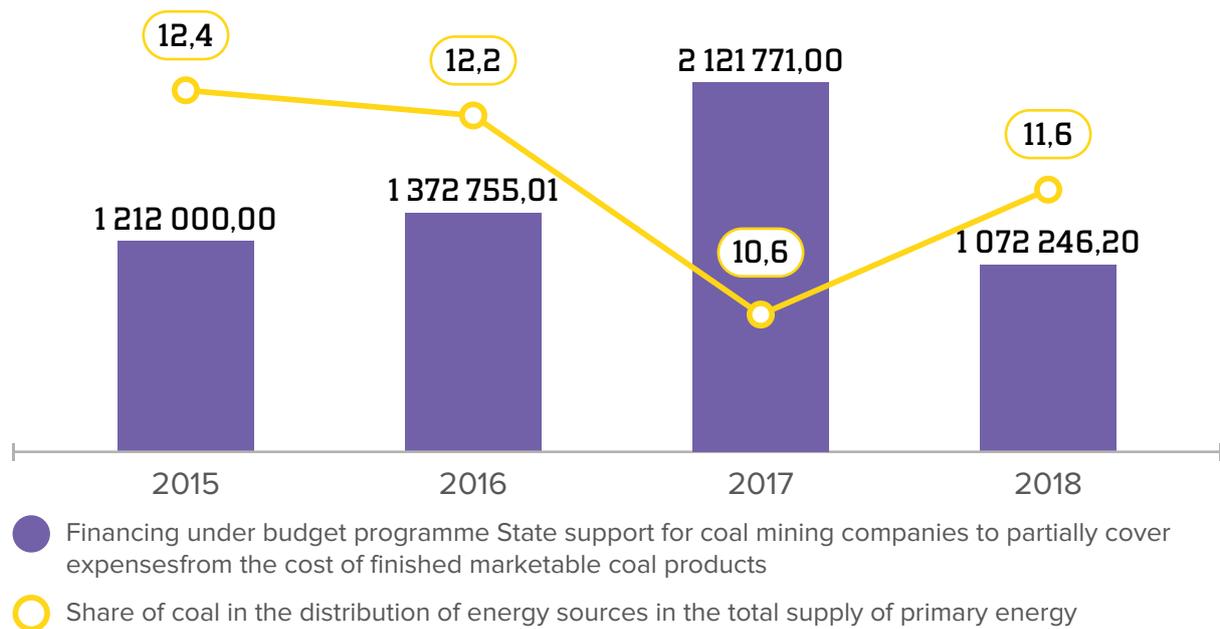
Source: Ministry of Energy¹⁸⁹

The chart (Fig. 18) shows the correlation between funding under the budget programme and the decrease in the share of coal consumption. The reason may be that the overall decline in demand for coal in the country has led to excess supply, including unsold volumes of coal from state-owned mines, which has led to the need to cover losses from the budget. However, this assumption is not confirmed by the change in the regulated (marginal) price of coal products and production volumes (the major reduction in response to the decline in demand fell on private mines), so another explanation may be the need to repay debts of previous periods.

188 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

189 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

Fig. 18. Share of coal in the structure of final energy consumption (%) vs. financing under the subsidy programme (UAH thousand)



Source: Ministry of Energy¹⁹⁰, State Statistics Service¹⁹¹

Budget programme code: 2401590 (until 2019 – 1101590)

Budget programme name: Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020).

The programme was launched in 2018, and since then expenditures increased systematically. By the end of 2020, it is planned to spend more than UAH 4.9 billion under the programme. Through this budget programme, the government continued to finance wage arrears, which took place under the programme "State support of coal mining companies to partially cover the costs of finished marketable coal products" in 2015-2018.

Thus, the functional purpose of the programme (restructuring) does not correspond to its real content. According to the passports of the budget programme for 2018-2020¹⁹², more than 90% of expenditures go to repay arrears of wages to miners. Interestingly, expenditures under the budget programme are reviewed and redistributed several times a year, increasing the share of arrears repayment. And in 2020 the budget programme was co-financed from the special fund of the state budget by UAH 1,4 billion exclusively for arrears repayment¹⁹³.

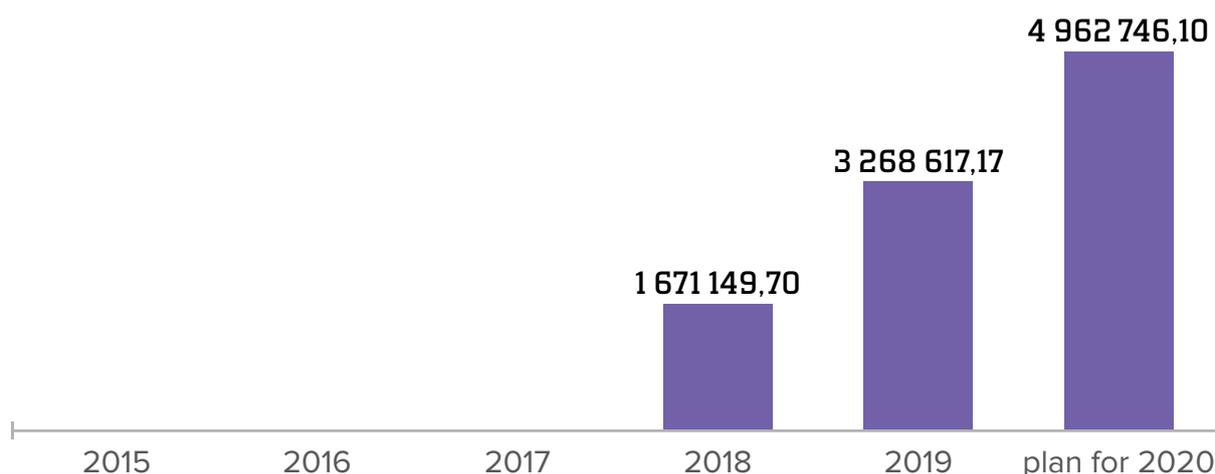
190 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

191 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

192 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

193 Verkhovna Rada. Law of Ukraine "On Amendments to the Law of Ukraine "On the State Budget of Ukraine 2020"". URL: <https://zakon.rada.gov.ua/laws/show/1006-IX#Text>

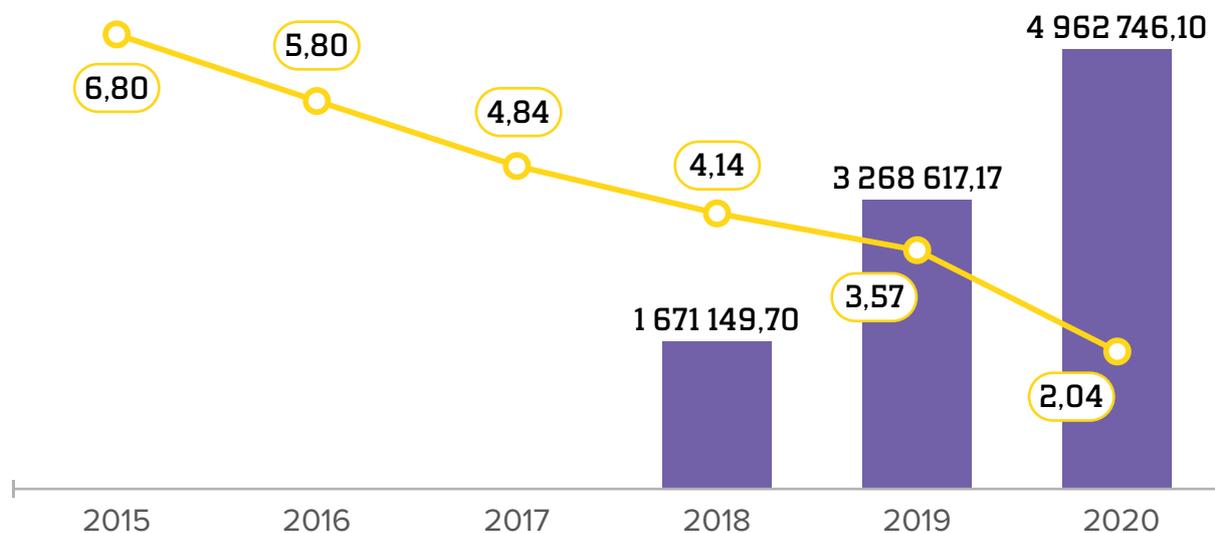
Fig. 19. Financing under "restructuring" budget programme (UAH thousand)



Source: Ministry of Energy¹⁹⁴, State Budget 2020 (as amended¹⁹⁵)

There is an increase in funding under the programme and a simultaneous decline in production, which also indicates the lack of positive impact of expenditures under this budget programme on this indicator. Although in 2018–2019 the programme allocated funds for technical re-equipment of mines, the decline in production during 2019–2020 indicates that these funds did not have a positive impact and were spent inefficiently.

Fig. 20. Volumes of production* (million tons) and financing under the "restructuring" programme (UAH thousand)



- Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)
- Volumes of extraction of enterprises subordinated to the Ministry of Energy

* Production data for 2020 are given for nine months

Source: Ministry of Energy^{196, 197}

194 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

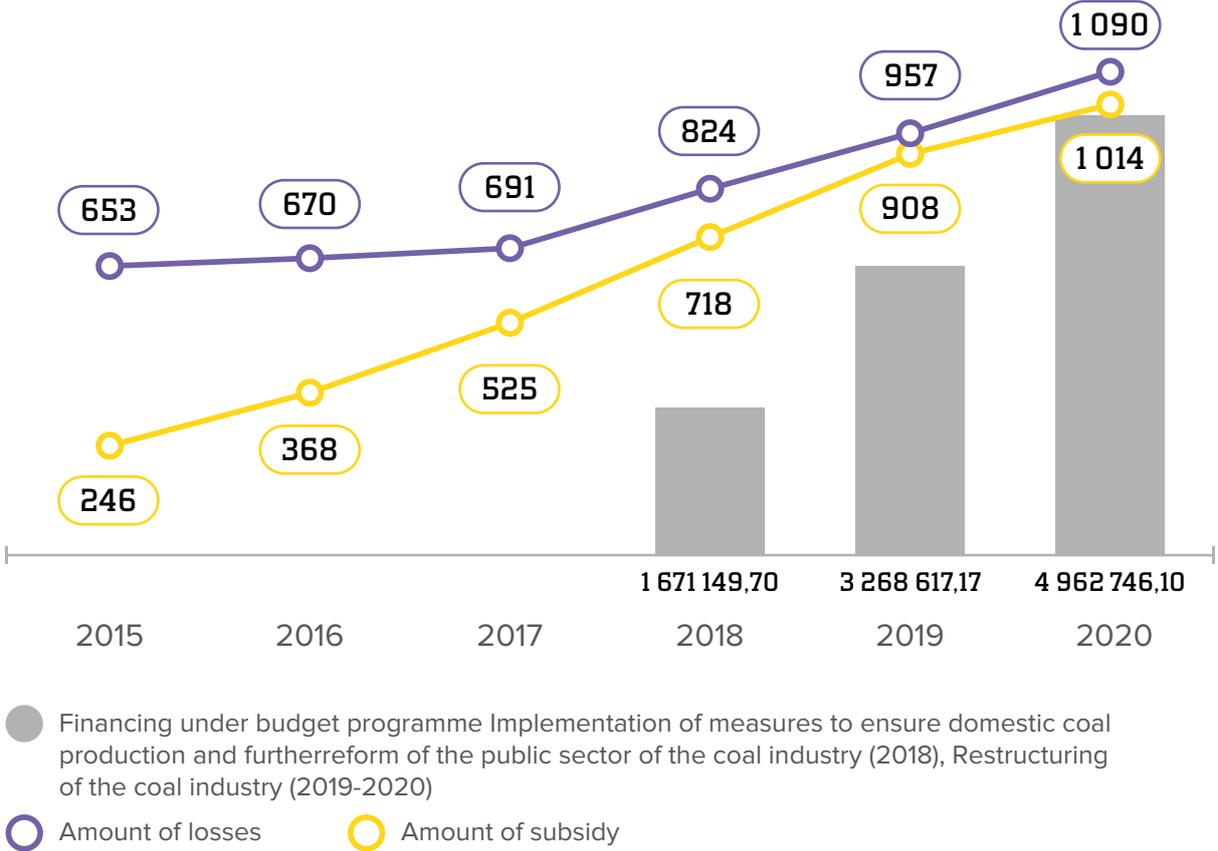
195 Verkhovna Rada. Law of Ukraine "On Amendments to the Law of Ukraine "On the State Budget of Ukraine 2020"". URL: <https://zakon.rada.gov.ua/laws/show/1006-IX#Text>

196 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

197 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

Another indicator with which the programme correlates is the level of unprofitability of Ukrainian state-owned mines. Losses and subsidies increase simultaneously with funding under the state programme. From 2018, the level of losses and subsidies per 1 ton of production will increase. Similarly to the level of production, it can be concluded that the programme did not affect the level of profitability or at least the reduction of losses of state-owned coal mining companies. This means that the funds are not used to restructure the industry, but are direct financing of unprofitable enterprises from the budget, i.e. in fact the misuse of public funds.

Fig. 21. Subsidies and losses (UAH/t) vs. the amount of funding under the "restructuring" programme (UAH thousand)



Source: passports of budget programmes of the Ministry of Energy¹⁹⁸, the message of the Ministry of Energy¹⁹⁹

198 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

199 Official Facebook page of the Ministry of Energy. URL: <https://www.facebook.com/minecoenergy/photos/a.1096844767038465/2872039699518954/?type=3&theater>

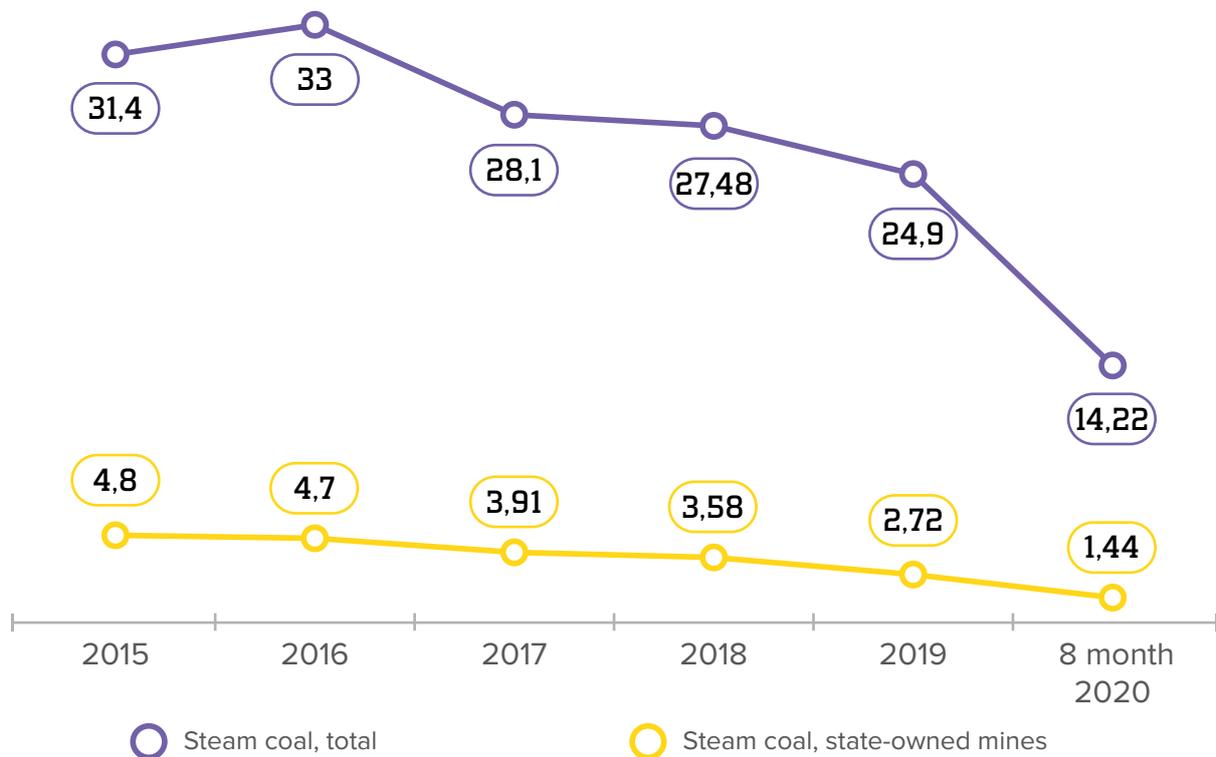
2.4. Assessment of effectiveness in terms of impact on socio-economic development

During the study period (2015-2020), the **amount of funding to support the coal industry did not show a positive impact on most indicators** that characterize public welfare, such as the volume of coal production in state-owned enterprises and its share in current total consumption, number of jobs, level of profitability/loss of state mines, etc. Therefore, it can be concluded that the **functioning of the coal industry and its systematic state support did not contribute to the growth of public welfare under a number of these indicators**.

We will now analyze the effectiveness of public spending on the coal sector in 2015–2020 in terms of meeting the criteria used in particular by the World Bank and the Organization for Economic Co-operation and Development (OECD) to study the effectiveness of public spending in various sectors of the economy.

The first stage is to assess the justification of government intervention in the industry, given that budget expenditures should be directed to those goods and services that the private sector is not able to provide to the required extent. According to detailed data, the share of coal production at state-owned mines in Ukraine in 2019 fell to 6.8%, a two-fold decrease compared to 2015. At the same time, the total annual level of coal production in 2019 at state-owned enterprises was only 16.8% of imports for the same period and 12.8% of production at private mines. In such circumstances, coal clearly cannot be included in the category of goods that the private sector (Ukrainian mining companies and importers) is not able to provide in sufficient quantities.

Fig. 22. Production of steam coal in general and in state-owned mines, million tons (2015–2020)



Source: Ministry of Energy²⁰⁰

200 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

Therefore, the gradual but complete abandonment of state support for the coal industry in favor of programmes related to the elimination of the consequences of the closure of coal enterprises to ensure a just transition seems to be reasoned. The need for such a step is explained by the fact that the private sector is not able to finance the necessary measures for retraining and social adaptation of laid-off workers, rehabilitation of mining areas, creating conditions for the development of non-mining industries, especially in communities where the local budget was completely dependent on coal companies and related industries.

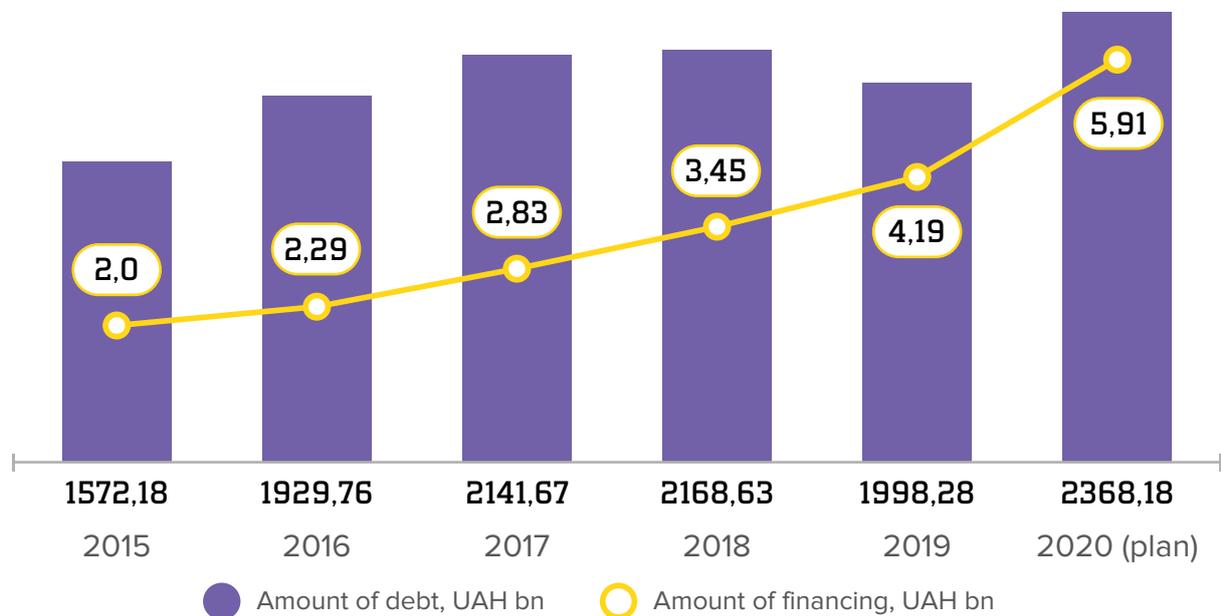
The second stage is to assess the potential **impact on public welfare** of similar public expenditures for alternative socially important purposes.

Since for the purposes of this study there was no modeling of alternative scenarios of economic processes associated with full or partial release of state budget funds to support the coal industry, we will compare the amount of these costs (total and annual) relative to the state budget deficit and state debt in the specified period.

As noted above, for the period 2015–2019, state budget expenditures to support the coal industry amounted to UAH 14.75 billion. During this time, the public debt of Ukraine increased from UAH 1.1 trillion as of 31 December 2014 to UAH 2 trillion as of 31 December 2019; growth over five years amounted to UAH 898 billion, or 81%. At the same time, the share of expenditures on the coal industry in the amount of public debt growth during this period was 1.6%, which is twice the share of the direct contribution of the coal industry to GDP in 2018.

This means that if the government completely abandoned state support for the coal industry and directed these funds to repay public debt, the principal of debt could be reduced by UAH 14.75 billion (over USD 0.5 billion at the current exchange rate) with a further reduction of state budget expenditures for its servicing.

Fig. 23. Expenditures on the coal industry vs. the dynamics of public debt growth (2015-2019)



Source: Ministry of Finance²⁰¹, Ministry of Energy²⁰²

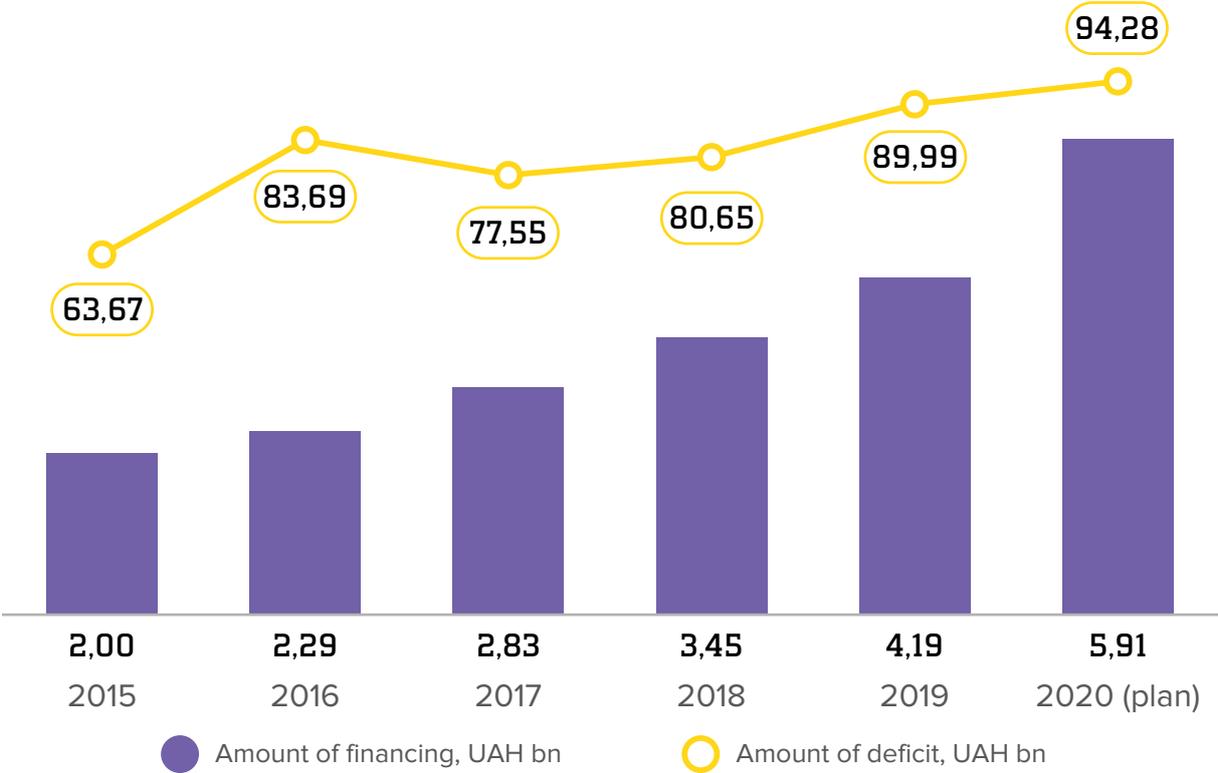
201 Ministry of Finance; Public debt of Ukraine. URL: <https://index.minfin.com.ua/finance/debtgov/2019/>

202 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

The state budget deficit ranged in absolute terms from UAH 63.67 billion (2015) to UAH 90 billion (2019). During this period, the share of annual expenditures in the coal sector relative to the deficit increased from 2.7% in 2016 to 4.8% (according to the plan for 2020). In other words, every twentieth hryvnia in the total budget deficit in 2020 will be directed to the coal industry, and the vast majority of these funds will be spent on salaries to employees of coal enterprises, i.e. "squandering".

Thus, the growth of expenditures on the coal industry, although insignificantly, but affects the growth of the budget deficit because it does not produce an economic effect in the form of revenues, except for a small flow of taxes from the payroll. We should not forget that the budget funding of the industry was accompanied by a steady decline in all major economic indicators in the coal industry, but nevertheless the state, represented by the relevant ministries spent budget funds by inertia for the same purposes, which is equivalent to putting out a fire with gasoline.

Fig. 24. Expenditures on the coal industry vs. deficit of the state budget of Ukraine (2015–2020)

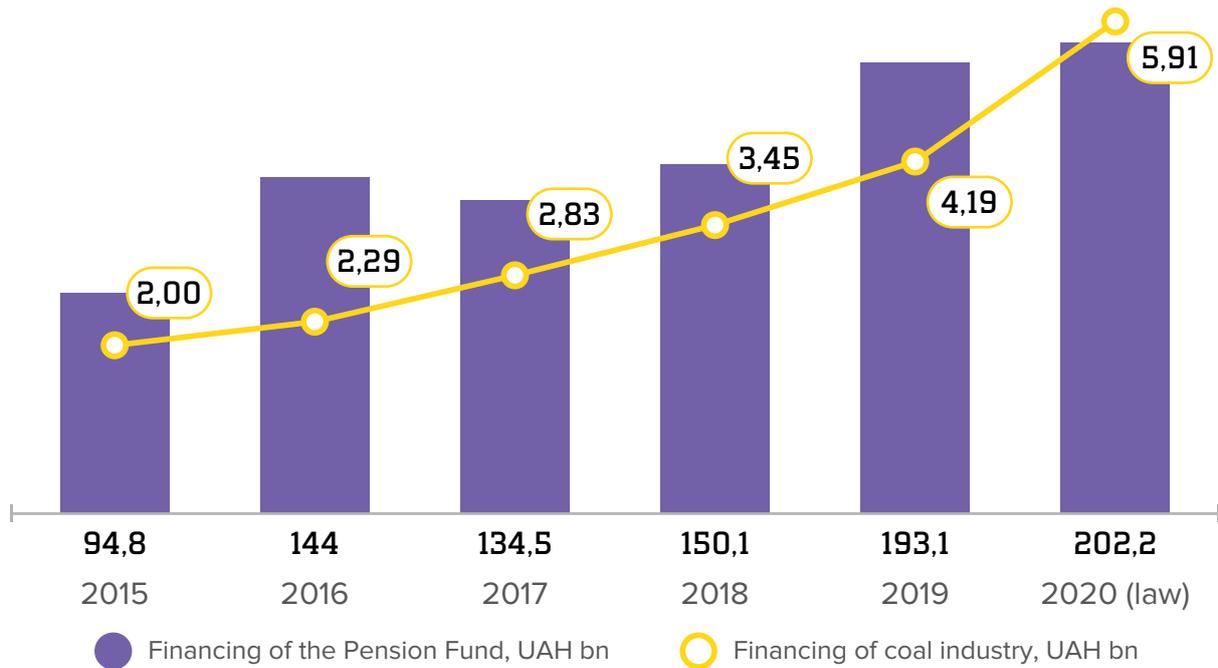


Source: "MinfinMedia" according to the State Treasury²⁰³, Ministry of Energy²⁰⁴

203 Execution of the state budget of Ukraine. URL: <https://index.minfin.com.ua/finance/budget/gov/2015/>

204 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

Fig. 25. Expenditures on the coal industry vs. budget financing of the Pension Fund



Source: Pension Fund²⁰⁵, Law "On the State Budget of Ukraine 2020"²⁰⁶

Expenditures on the coal industry also generally reflect the growing trend of budget expenditures to finance the deficit of the Pension Fund, which confirms their hidden social nature. In other words, without systemic solutions in the context of systematic raising of social standards (minimum wage, minimum pension, subsistence level), the expenditures on "squandering" are constantly growing, placing an additional burden on the state budget. In the situation with the financing of the coal industry, expenditures are extremely inefficient and increase every year due to the constant deterioration of economic indicators of enterprises. The case with the Pension Fund is similar, with a certain error to the objective demographic situation, which makes the pay-as-you-go pension scheme insolvent: it lacks its own revenues to cover all expenditures, and therefore the state is forced to cover the deficit, which grows every year, without any hope of reducing it in the future.

To avoid collapse, both situations require large-scale comprehensive solutions from the government, which can reverse negative trends, through the introduction of incentives – capital investment in mines and decisive steps to introduce mandatory accumulative pension accounts.

Given the constant lack of state budget funds to finance programmes and industries that demonstrate positive development dynamics, the government should seek to minimize expenditures on items that do not show a link between budget expenditures and the improvement of key socio-economic development indicators. Reducing the amount of public debt or the planned budget deficit by the amount of these budget funds seems to be a more financially efficient way, thereby reducing the actual or potential debt burden on the budget. At the same time, opponents of this approach point to other factors, such as social protection, support for vulnerable professions.

Therefore, the **third stage** involves **assessing the impact** of public spending **on the poorest sections of the population**.

205 Report on the execution of the budget of the Pension Fund of Ukraine. URL: <https://www.pfu.gov.ua/statystyka/vydatky-ta-dohody-byudzhetu-fondu/>

206 Law of Ukraine "On the State Budget of Ukraine for 2020". URL: <https://zakon.rada.gov.ua/laws/show/294-20#Text>

Coal has a rather indirect effect on the welfare of the poorest Ukrainians. First, the share of coal in the structure of final energy consumption in 2015-2017 did not exceed 12%, and the rest is used in industry, mainly for electricity generation. The generated electricity is sold to industry at market prices, and to the population at the regulated price which is the same for all categories of consumers. The most vulnerable categories of the population do not have a separate lower price, and those who consume more electricity i.e. richer consumers benefit the most from the existence of a single regulated price. If we add the structural distortions in the wholesale market related to the implementation of the public service obligations (PSO) to maintain a regulated price for the population and a high "green" tariff for producers from renewable sources, it becomes clear that approaches to pricing of electricity will be subject to adjustment in the future.

The vast majority of state-owned coal companies are unprofitable, have arrears of wages to miners, and the level of material remuneration for work in the industry is quite low, given the specifics of work in the industry. As of 5 June 2020, the total arrears of state-owned mines on wages with accruals for 2015-2019 amounted to almost UAH 150 million (debts extend from 2015)²⁰⁷. Permanent wage arrears and low wage level clearly do not help to attract new employees to the industry, but rather encourage the outflow of staff, which puts pressure on the Fund of Compulsory State Social Insurance in Case of Unemployment.

In addition, the coal industry is characterized by extremely difficult and dangerous working conditions that constantly threaten the lives of workers and provoke the development of a number of chronic occupational diseases, especially when the cost of technical re-equipment, in particular to ensure occupational safety, remains unfunded for a long time. Such disappointing conclusions are confirmed by the report on the state of labor protection at coal enterprises for 2017, prepared by the State Labor Service of Ukraine²⁰⁸.

As of 1 January 2018, the provision of personal protective equipment at state-owned mines was the following: oxygen self-rescuers – 57%, respirators – 78%, filters for respirators – 44%; while in private mines these figures were 100%. A similar picture is observed with regard to means of collective protection (fire extinguishers, fire-irrigation pipelines, automatic fire extinguishing systems, inert dust). As a result, non-state-owned mines generally show lower injury rates (in 2017, the fatal injury rate per 1 million tons of coal was 3.58 for state-owned mines and 0.43 for private mines)²⁰⁹, despite the significantly larger scale of production. Such realities make some employed workers hostage to their enterprises for fear of losing at least some job or not yet paid wages.

The results of the audit by the Accounting Chamber show that the average wage of workers in the industry increased from UAH 6,741 (2016) to UAH 8,368 (2017) and to UAH 10,353 (2018). In 2019, it was planned to increase to UAH 11,144. However, the increase in wages is accompanied by a decrease in the productivity of miners from 13.8 tons/person in 2016 to 12.2 tons/person in 2017-2018; for 2019 the planned workforce productivity was 11.9 tons/person²¹⁰.

So we can state that the impact of the coal industry on the poorest segments of the population is indirect and mostly unfavorable due to the predominance of negative economic trends in the industry. Perhaps the only positive short-term effect of government support for the industry is the reduction of arrears of wages to employees. However, as mentioned earlier, it is for these purposes that most of the expenditures of state support for the coal industry are directed.

To complete the picture, we will determine the amount of "effective" and "strategic" savings using the tools used by international organizations (World Bank, IMF, OECD, etc.) when analyzing the effectiveness of budget expenditures.

207 Rybinska I. Debts to miners: how much the state has paid and owed since 2015. // "Slovo i Dilo". 2 July 2020. URL: <https://www.slovoidilo.ua/2020/07/02/statija/ekonomika/zaborhovanist-pered-shaxtaryamy-skilky-zaplatyla-ta-zaborhuvala-derzhava-2015-roku>

208 State Labor Service of Ukraine. Summary report of the Department of Supervision in the Coal Industry on the state of labor protection at coal enterprises for 2017. URL: <https://dsp.gov.ua/zvit-pro-stan-okhorony-pratsi-na-vuhilnykh-pidpriemstvakh-za-2017-rik>

209 Ibid.

210 Accounting Chamber. Report on the results of the audit of the efficiency of the use of state budget funds allocated to the Ministry of Energy and Coal Industry of Ukraine for state support of coal mining enterprises to partially cover the costs of finished coal products. Approved by the decision of the Accounting Chamber No. 32-2 of 12 November 2019. URL: https://rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/Zvit_32-2_2019.pdf

"Effective" savings²¹¹ is the amount of funding reduction within the industry or programme, which can be achieved by focusing on the purchase of goods and services similar in quality and quantity at a lower cost.

In the situation with the financing of the coal industry, it is impossible to determine the amount of effective savings, as the industry has long been underfunded. According to the Ministry of Energy²¹², from 2013 to 2017, measures for technical re-equipment and modernization of coal mining enterprises were not financed at all. In 2018, expenditures for these purposes amounted to UAH 307.1 million, or slightly more than 20% of the minimum required level. In 2017, UAH 2.1 billion was allocated from the state budget instead of the minimum required UAH 2.9 billion, which led to an increase in debt.

At the same time, all the main indicators of the industry's activity show that for the last 30 years it has been constantly stagnating in the conditions of stable budget financing. Coal production has almost halved in 2015-2020, and there is currently no reason to believe that the current funding will significantly improve the situation. To increase production and reduce its cost, the state must increase funding for investment programmes (technical modernization of production, re-equipment, improvement of safety and working conditions, etc.).

This conclusion is confirmed by the data of the Accounting Chamber, which found that the decline in coal production at state-owned coal mining enterprises is primarily due to significant depreciation of fixed assets (from 30% to 75%), lack of funds to upgrade production equipment, which leads to low level of preparation of new treatment faces and delays in their introduction, and hence to additional labor costs that are not covered by the cost of sold coal products²¹³.

Analyzing the cost-effectiveness, it is important to determine the so-called "spend to save" measures. This is the amount of money needed to implement new technologies that guarantee cost reductions in future periods. It is obvious that in the coal industry the volume of such costs (in particular for technical modernization of enterprises and opening of new longwalls/faces) should significantly exceed the current total level of funding for the industry for a long time, which makes such a prospect economically meaningless.

In the conditions of constant lack of the minimum necessary financial resources the approach to an **estimation of "strategic" expenditures²¹⁴** seems more effective in the industry. Strategic expenditures here mean the amount of budget funds that need to be spent on alternative goals to maximize the effect for the economy, in particular in regions where coal mining and related industries are concentrated (concentrating plants, TPPs/CHPs, etc.). Strategic savings are achieved through the reduction or complete abandonment of services and expenditures that are considered inefficient or low priority for the government. The analysis of strategic savings involves primarily impact evaluation²¹⁵ of budget expenditures to determine the effectiveness of those programs, the importance of the results of which for society is not questioned, and the effectiveness is not fully understood.

However, the analysis of the main economic indicators of the sector, presented in Annex 1, showed serious shortcomings in public policy. After all, the amount of funding practiced by the government was accompanied by a steady deterioration in key economic indicators, and these were exactly the indicators that they promised to improve in the relevant industry development programs.

211 Organisation for Economic Co-operation and Development. 3rd Annual Meeting of OECD Senior Budget Officials. Spending Reviews. URL: [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO\(2013\)6&doclanguage=en](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO(2013)6&doclanguage=en) – P. 5.

212 Ministry of Energy and Environmental Protection of Ukraine. Letter to the Accounting Chamber "On Provision of Information". Ref. No. 60/05 of 13.01.2020. URL: http://www.rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/796.pdf

213 Accounting Chamber. Report on the results of the audit of the efficiency of the use of state budget funds allocated to the Ministry of Energy and Coal Industry of Ukraine for state support of coal mining enterprises to partially cover the costs of finished coal products. Approved by decision of the Accounting Chamber No. 32-2 of 12 November 2019. URL: https://rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/Zvit_32-2_2019.pdf

214 Organisation for Economic Co-operation and Development. 3rd Annual Meeting of OECD Senior Budget Officials. Spending Reviews. URL: [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO\(2013\)6&doclanguage=en](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO(2013)6&doclanguage=en) – P. 14.

215 Ibid, pp. 26–28.

This indicates that the funds were allocated on a residual basis and in amounts much lower than the minimum needs. That is, such expenditures were inefficient and not a priority for the government. And the planning of expenditures was of such quality that in 2018 alone, the amount of coverage of arrears of wages to miners was revised six times! Accordingly, this required amendments to the budget law and redistribution of expenditures between budget programs²¹⁶.

At the same time, some negative issues related to the closure of coal enterprises were accumulated and not particularly solved: social protection and further employment of laid-off workers, creating conditions for the revival of economic processes in the former mining communities (especially the so-called "mono-cities", whose budget revenues depended largely on the operation of coal enterprises), safe closure of mines in terms of environmental legislation, rehabilitation of coal mining areas and improvement of the environment.

In a situation of strategic savings, the introduction of alternative expenditures or the reduction of part of expenditures often encounters political opposition from those individuals or forces that benefit from the status quo. Participants in the budget process often try to avoid cutting budget programmes with questionable efficiency by slowing down the redistribution of expenditures in favor of new, higher-potential, budget programs. This happens due to the sometimes unfounded hopes that achieving economic growth will be inevitable. Often, the increase in expenditures was due to political motives, regardless of the rate of economic growth – by borrowing and increasing the budget deficit. However, if cuts are inevitable, the government often goes the way of less resistance and instead of closing some budget programmes it uses universal sequestration, which affects all or the vast majority of spending units²¹⁷.

According to the Ministry of Energy, unsatisfactory financing of the coal industry in previous periods has led to the fact that at the beginning of 2020 there was an alarming trend: the level of mechanization of coal mining is steadily falling, which leads to the replacement of shearer-loaders with jackhammers, and replacement of mechanized complexes with individual fastening. This situation significantly increases the cost of coal production and causes a massive outflow of skilled workers, makes it impossible to maintain the sustainable functioning of the coal industry and increase coal production²¹⁸.

We have to admit that the government currently has **two possible options** for action in the coal industry, depending on its strategic priorities. The first is the **gradual but complete abandonment of state support for coal enterprises with the subsequent closure or privatization of state-owned enterprises, and the transition to financing only those projects aimed at eliminating the consequences of coal mining** – social, economic, environmental, etc.

The second option involves a **significant (by times) increase in expenditures to support the coal industry, especially its investment component, to ensure a certain economically justified level of coal production**, the selling price of which will be higher than the cost of production. This will require significant capital investment in the latest technologies and equipment, as well as the abandonment of manual coal mining in favor of mechanization, which will "pull" the most promising mines into the profitable zone from the deeply unprofitable one.

In the case of the second option, we should not forget that even the stabilization of production at the current level will require additional budget expenditures. It should also be borne in mind that the choice of the second option calls into question the climate commitments undertaken by Ukraine, as investing in the development of coal mines will potentially lead to the need to maintain them to recoup investment – and thus dependence on fossil fuels and CO₂ emissions.

216 Rybinska I. Debts to miners: how much the state has paid and owed since 2015/"Slovo i Dilo". 2 July 2020. URL: <https://www.slovoidilo.ua/2020/07/02/statija/ekonomika/zaborhovanist-pered-shaxtaryamy-skilky-zaplatyla-ta-zaborhuvala-derzhava-2015-roku>

217 Organisation for Economic Co-operation and Development. 3th Annual Meeting of OECD Senior Budget Officials. Spending Reviews. URL: [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO\(2013\)6&doclanguage=en](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=GOV/PGC/SBO(2013)6&doclanguage=en) – P. 7.

218 Ministry of Energy and Environmental Protection of Ukraine. Letter to the Accounting Board "On Provision of Information". Ref. No. 60/05 of 13.01.2020. URL: http://www.rp.gov.ua/upload-files/Activity/Collegium/2019/32-2_2019/796.pdf



3. CONCLUSIONS AND RECOMMENDATIONS

The analysis gives grounds to state that the volumes and directions of budget financing of the coal industry during 2015-2020 **was not fully in line with policy and strategy documents, and was not efficient:**

- ▶ **most of the funds were used to cover arrears of miners' wages**, for which the government or parliament periodically adjusted budgetary expenditures by reducing the investment component. This approach does not meet the principles of integrated budget planning and cannot ensure sustainable development of the industry in accordance with the planned parameters. The government has not monitored the efficiency of budget spending in previous periods, so that the allocation of expenditures in the coal industry has not changed from year to year, and the share of wage compensation in the structure of expenditures reached 70-80% depending on the year;
- ▶ **measures to modernize enterprises** aimed at increasing the productivity of coal production and economic performance **were either not financed at all or financed on a residual basis** without regard to economic feasibility. In 2015-2020, only twice (in 2018 and 2019) funds were allocated for re-equipment and modernization of coal mining enterprises in the total amount of about UAH 690 million;
- ▶ despite a number of Ukraine's climate change commitments, which called if not for the complete closure of coal mines, then for the phasing out of fossil fuels and just transformation of coal regions, the reflection of these commitments in strategic documents has been very slow. **Until recently, the issue of abandonment or closure of mines was not raised in government declarations and strategic plans.** Now there are such goals, in particular in the draft Concept of "Green" Energy Transition by 2050, however, the Ministry of Energy is already announcing its intention to revise this document²¹⁹. The draft new Coal Industry Reform Concept envisages a reduction in production, the liquidation of mines that will not be integrated with Centerenergo or privatized, and the "economic diversification of mining regions."

Insufficient attention was also paid to the financing of social and professional adaptation programmes for workers of coal mining enterprises, which are being closed due to the restructuring of the industry, the development of private initiatives in mining communities and the rehabilitation of lands where coal was produced;

- ▶ the implementation of the restructuring policy was characterized by inconsistency and unclear definition of long-term goals of the coal industry development. **Most of the adopted legislation on coal reform has not been implemented**, and many strategic and conceptual documents have not

219 Ukrainian energy. The Ministry of Energy will revise the Concept of "Green" Energy Transition – Buslavets. URL: <https://ua-energy.org/uk/posts/minenerho-perehliane-kontseptsiiu-zelenoho-perekhodu-buslavets>

been implemented, targets have not been met, **but the government has continued to advocate for increased production and subsidies for the industry;**

- ▶ forecasting and planning of the coal industry development was at an inadequate level: **the government constantly overstates targets, the achievement of which required additional funding.** Although some documents contained lists of proposed measures and lists of unprofitable enterprises to be closed, this did not ensure the achievement of the objectives of restructuring the coal industry in terms of increasing coal production, reducing government subsidies and profitability of production;
- ▶ another indication of the ineffectiveness of the state policy on reforming the coal industry is the **actual lack of a full-fledged coal market in Ukraine**, despite the fact that the transfer of coal products to market pricing has been proclaimed one of the goals of the reform since 1996;
- ▶ the only aspect of reform where the government has made progress is **decrease in the number of coal enterprises.** However, until recently, the decrease in the number of these enterprises was mainly due to the inability to carry out their further economic activities and due to the loss of control over part of the territory of Ukraine.

The study showed a **weak correlation between the amount of financial state support for the coal industry during 2015-2019 and the selected performance indicators**, but even the identified correlation does not indicate a direct positive impact on them. The results of the implementation of budget programmes (in particular the programme "Restructuring of the Coal Industry") serve as a clear indicator of how effectively the reform actions announced in the concepts and plans have been implemented. It is obvious that the lack of funding for investment and development or its actual reduction during the budget period led to further degradation of coal enterprises, as well as limited opportunities for break-even coal production in the future. This clearly contradicts the goals set out in each of the reviewed concepts and at the same time calls into question the expediency of further financing of the coal industry regardless of the set goals of its development and clear quantitative indicators of their achievement.

The adoption of concepts for the reform and development of the coal industry was a positive step and showed the government's awareness of the need for active measures to reform the industry. However, **the systematic failure to meet the targets envisaged by the concepts, as well as the lack of adequate response to their unrealized goals, may indicate an underestimation by the government of the financial resources** needed to complete the restructuring of the coal industry and a certain corruption interest in coal subsidies.

Thus, the situation looks like a vicious circle: on the one hand, the government sets inflated and unjustified targets, the achievement of which requires appropriate amounts of funding, unaffordable for the budget; on the other hand, the reduction or absence of such funding exacerbates the degradation of coal enterprises and also limits opportunities for profitable coal production in the future.

The draft new Concept of Coal Industry Reform published in October 2020, is a step forward compared to the current state policy documents, which gives hope that in case of adequate funding of the measures set out therein, positive changes will take place. **At the same time, it has "inherited" certain shortcomings of the still-existing Concept of Coal Industry Reform and Development until 2020.** In particular, the focus is on the management of the existing portfolio of state assets, while there is no assessment and/or modeling of the long-term needs of the economy for coal (assuming that demand will continue), nor are there any public policy objectives and measures for the private segment of the coal sector (although the title of the document hints at a vision for the development of the whole industry, without regard to ownership).

The government's current approach is to divide the mines into categories or groups in order to further privatize them, transfer them to Centerenergo, or reorganize them. This approach is presented simultaneously with the declaration that liquidation is expected only for those enterprises that will not be transferred to Centerenergo or privatized (including as integral property complexes that can be repurposed for other activities).

Such an action plan, in our opinion, **has a weak economic feasibility, as it is difficult to predict a significant interest of investors in financially toxic, heavily subsidized assets** – except when the purchase will be

made to sell residual assets, which is contrary to the new Concept. As for some of the state-owned mines that are proposed to be transferred to Centerenergo as being able to provide production, this attempt to create artificial demand for coal from these mines is also a temporary solution, as this mechanism is not market-based. In other words, from a purely economic point of view, it may turn out to be much more profitable for Centerenergo to buy coal on the market than to "deploy additional financial resources to bring the merged coal mining companies to break-even point" and later benefit from vertical integration.

The form of the pilot project chosen to implement this policy also contains risks, as it is unclear what the government will do if this experiment leads to discontent and increased social tensions in the coal regions. Potentially unpopular but necessary policies and measures should not be the subject of pilot projects, as there are always risks of their rejection by society and the reflection of these sentiments in the political will to reform. Nevertheless, the launch of pilot projects makes it possible to identify the weakest points of the proposed policies, which are not systemic in nature, and to scale the approach to the whole sector.

DiXi Group Think Tank offers a number of **recommendations** aimed at optimizing budget planning in the coal industry. The success of most proposals depends on the interdepartmental cooperation of central executive bodies at all stages of the implementation of state policy in the coal industry.

► **The Cabinet of Ministers of Ukraine, the Ministry of Energy of Ukraine, the Ministry of Development of Communities and Territories of Ukraine, the Ministry of Social Policy of Ukraine, the Ministry of Finance of Ukraine shall:**

- at the stage of finalization, harmonize the draft Concept of Coal Industry Reform with Ukraine's climate commitments under the Paris Agreement and to synchronize economic indicators of the industry with the provisions of other relevant public policy documents (Concept of "Green" Energy Transition of Ukraine by 2050, National Programme for the Transformation of Coal Regions of Ukraine by 2027), which are at the stage of development or approval;
- take into account during the finalization of the draft Concept the results of long-term modeling of Ukraine's energy development, which is carried out in preparation for the second NDC and the Integrated Plan to Combat Climate Change and Energy Development by 2030, in particular adjust actions to realistic scenarios of coal demand development;
- supplement the draft Concept with a vision for the development of the private segment of the coal sector, to form appropriate goals and measures of state policy;
- given the mono-profile nature of some coal cities during the preparation of the National Programme for Transformation of Coal Regions of Ukraine by 2027, it is necessary to provide for the development of separate action plans for socio-economic support of specific cities, which would provide stable investment in SMEs, economic education, courses of professional retraining, re-profiling of individual facilities of the former coal enterprises, etc.;
- switch to medium-term (5-7 years) planning of expenditures for the coal industry already during the preparation of proposals to the state budget for 2022 by applying the requirements of the Budget Code for medium-term budget planning (3 years) at the level of relevant budget programs;
- when planning expenditures for modernization of coal enterprises, approve a system of control indicators (which would take into account not only the economic aspect of the industry, but also climatic and social ones) of effectiveness of budget programs, based on which the decisions will be taken to continue or discontinue funding for specific budget programmes.

Such indicators in particular could be: the level of meeting the needs of the economy with domestically-produced coal, productivity, profitability of coal enterprises, the level of pollution in the production region, no wage arrears, indicators of socio-economic development in coal mining regions, reducing accidents and injuries in the industry, etc. It is necessary to develop a methodology and criteria for evaluating these indicators to allow unambiguous interpretation of conclusions about the effectiveness of budget funding.

► **The Ministry of Energy of Ukraine shall:**

- develop a comprehensive programme of modernization of coal enterprises, guaranteeing a sufficient amount of capital investment for technical re-equipment of enterprises, increasing the level of labor safety. Obviously, the first to take part in this programme should be those few notionally profitable state-owned enterprises that can be brought to a certain level of profitability at a lower cost;
- establish a threshold value (share) of capital investment expenditure in the structure of budget financing for the sector, not to be reallocated to subsidies, and a pilot period during which the state commits itself to financing the modernization of coal sector enterprises in order to bring them to profitability. Based on the results of the pilot period and based on the analysis of the state of achievement of target indicators of the industry development, the government will decide to continue or modify the approaches to financing;
- during the preparation (refinement) of budget requests, avoid the approach to the pooling of expenditures of different functional areas, instead adhere to the programme-target method and Budget Code requirements on economic classification of expenditures, in particular to clearly divide programmes in the coal sector: subsidies (coverage of losses, wage arrears, debts for consumed electricity), investment in the development of individual state enterprises, liquidation of mines, mine-rescue and environmental protection measures and other areas of public policy;
- strengthen control over the misuse of budget funds provided for measures to modernize coal enterprises in order to bring them to a profitable level;
- ensure coordination of measures related to the reform of the coal industry with state administrations of Volyn, Dnipropetrovsk, Donetsk, Luhansk and Lviv oblasts to align the relevant regional programmes of socio-economic development with the government's plans;
- given the need to decommission coal-fired generation facilities in line with Ukraine's international commitments, a plan for their gradual replacement with renewable or low-carbon generation plants should be developed, using the potential of former coal mining areas to host appropriate plants and/or technology parks.

► **Ministry of Communities and Territories Development of Ukraine:**

- ensure constant communication with the communities on the territory of which coal mining, enrichment and consumption takes or took place, in order to coordinate measures aimed at socio-economic development and rehabilitation of territories;
- conduct an awareness-raising campaign aimed at current and former employees of coal mining companies, during which public mechanisms for initiating/developing entrepreneurship or retraining available to the public should be explained;
- consider possible scenarios for the opening of technological or industrial clusters in conjunction with tax benefits in the territories of former coal mining and preparation of investment projects to attract, in particular, international investors.

► **The Antimonopoly Committee of Ukraine, in consultation with the Ministry of Energy of Ukraine:**

- ensure the submission for consideration and adoption of the resolution of the Cabinet of Ministers of Ukraine "On Approval of the Criteria for Assessing the Admissibility of State Aid to Economic Entities in the Coal Industry";
- revise state aid programmes in order to bring them into line with the criteria set out in Articles 262 and 264 of the EU-Ukraine Association Agreement and the requirements of the Law "On State Aid to Economic Entities".

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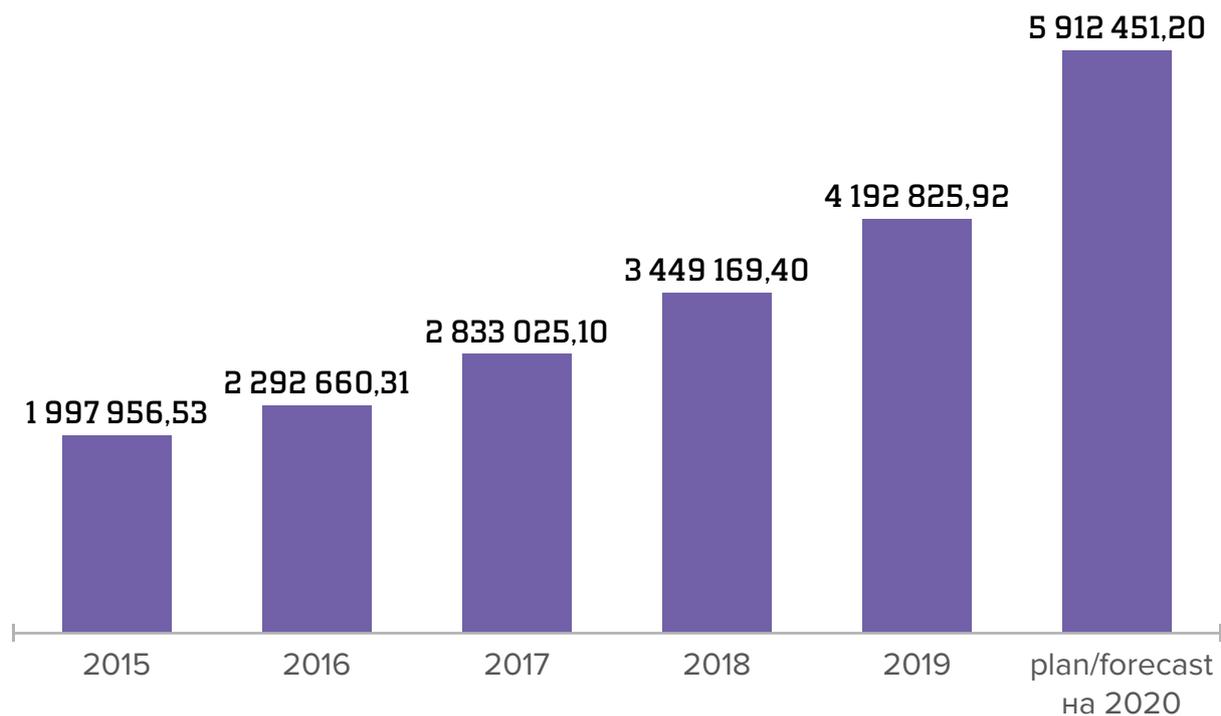
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ANNEX 1

Estimation of allocated budget funds for the coal industry by year (2015-2020)

Chart 1. Financing of the industry by year, UAH thousand

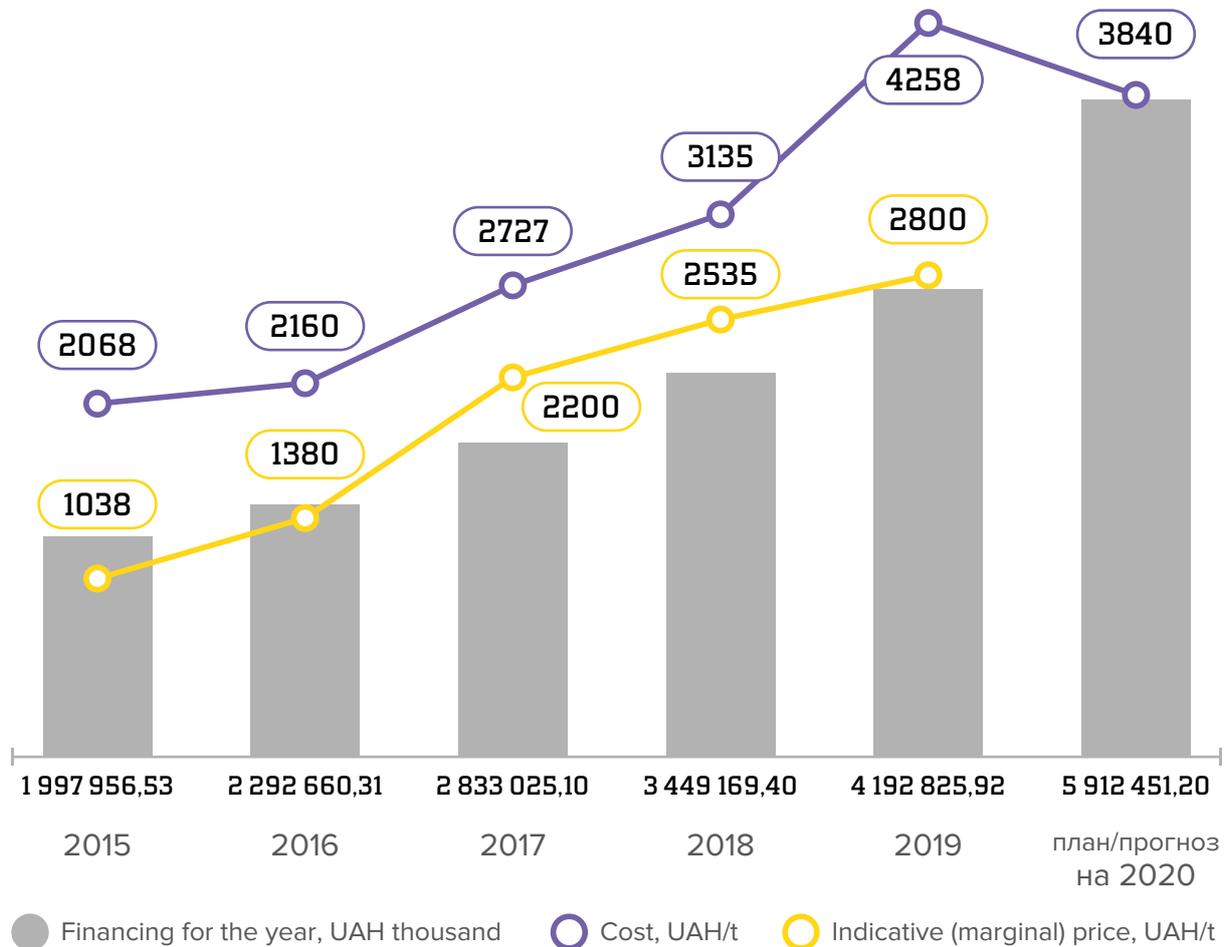


Source: Ministry of Energy ²²⁰

220 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

Chart 2. Average cost of 1 ton, indicative price per 1 ton vs. total financing for the year (2015 -2020)

Average cost of 1 ton of coal mined in state-owned mines is **growing steadily**.
 The indicative price for coal products is **growing steadily**.
 (set by the Ministry (excluding VAT and transportation))



Source: Ministry of Energy ^{221, 222, 223}

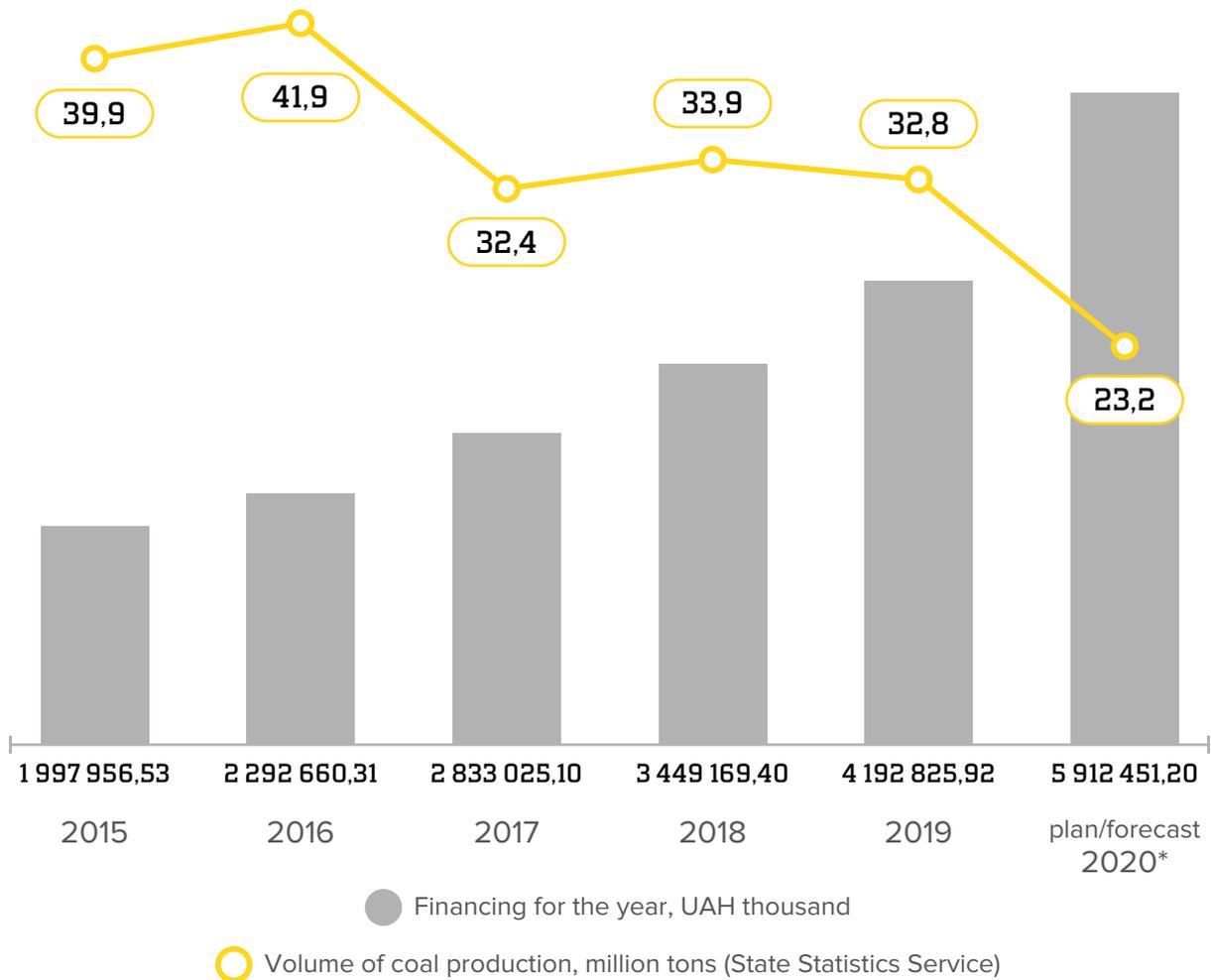
221 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

222 Ministry of Energy. Minutes of meetings to determine the marginal price for coal products. URL: <http://mpe.kmu.gov.ua/minugol/control/uk/doccatalog/list?currDir=50043>

223 Deputy Minister of Energy's Facebook page. URL: <https://www.facebook.com/photo?fbid=2822049804734673&set=pcb.2822050531401267>

Chart 3. Production volume by year vs. total financing (2015 -2020)

Coal production by year (2015–019, million tons) is **uneven**.
In 2016 and 2018, there is a slight increase.



Source: Ministry of Energy²²⁴, State Statistics Service²²⁵

*volume of production for 2020 is indicated for 10 months

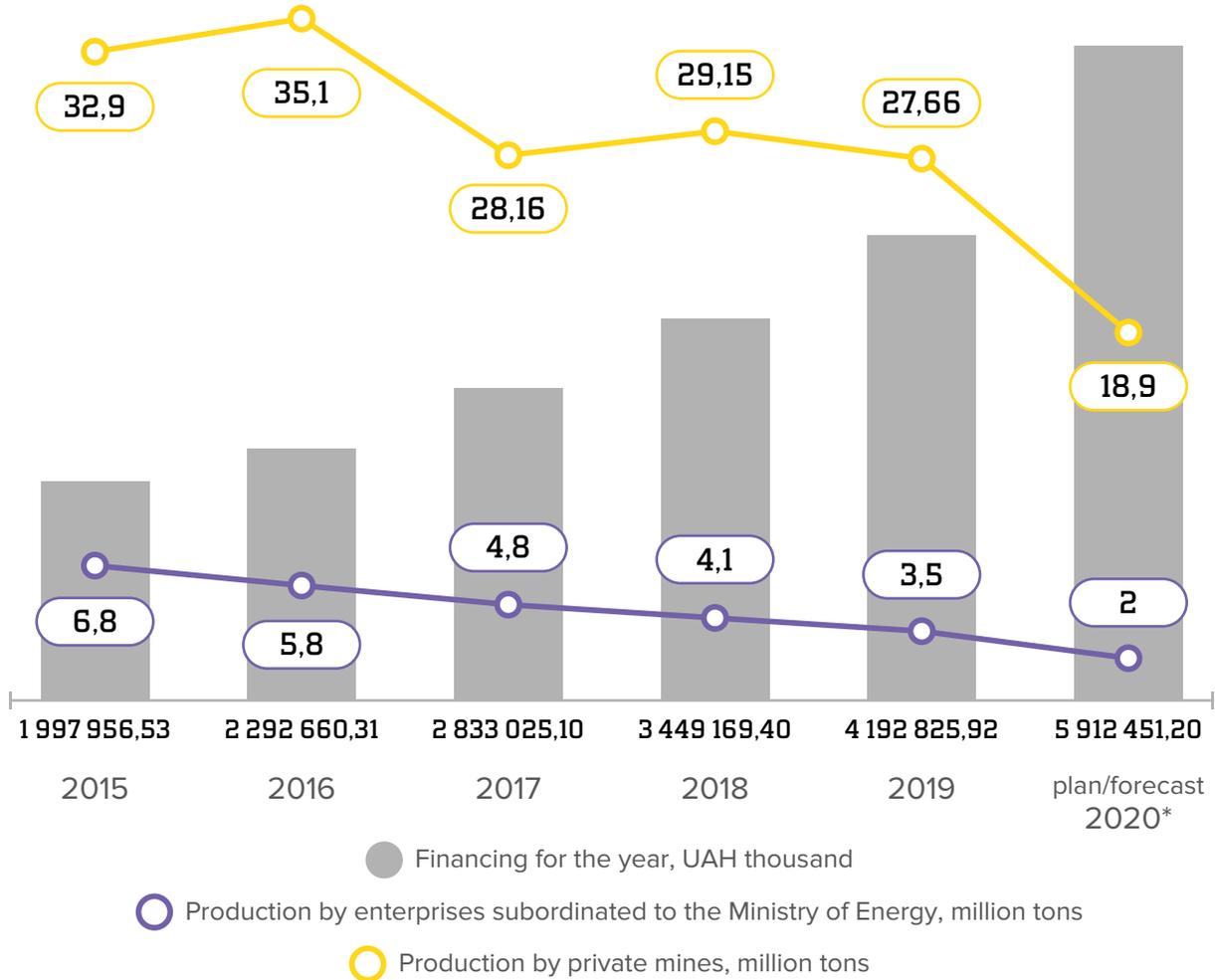
224 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

225 State Statistics Service. Production of industrial products by type 2019–2020. URL: http://www.ukrstat.gov.ua/operativ/operativ2016/pr/vr_rea_ovpp/vr_rea_ovpp_u/arh_vppv_u.html

Chart 4. Production in terms of subordination of enterprises vs. total financing

Coal production in terms of subordination of enterprises (million tons).

Coal production at coal companies is steadily **declining**, while private coal companies show a slight increase in 2016 and 2018.



Source: Ministry of Energy^{226, 227}

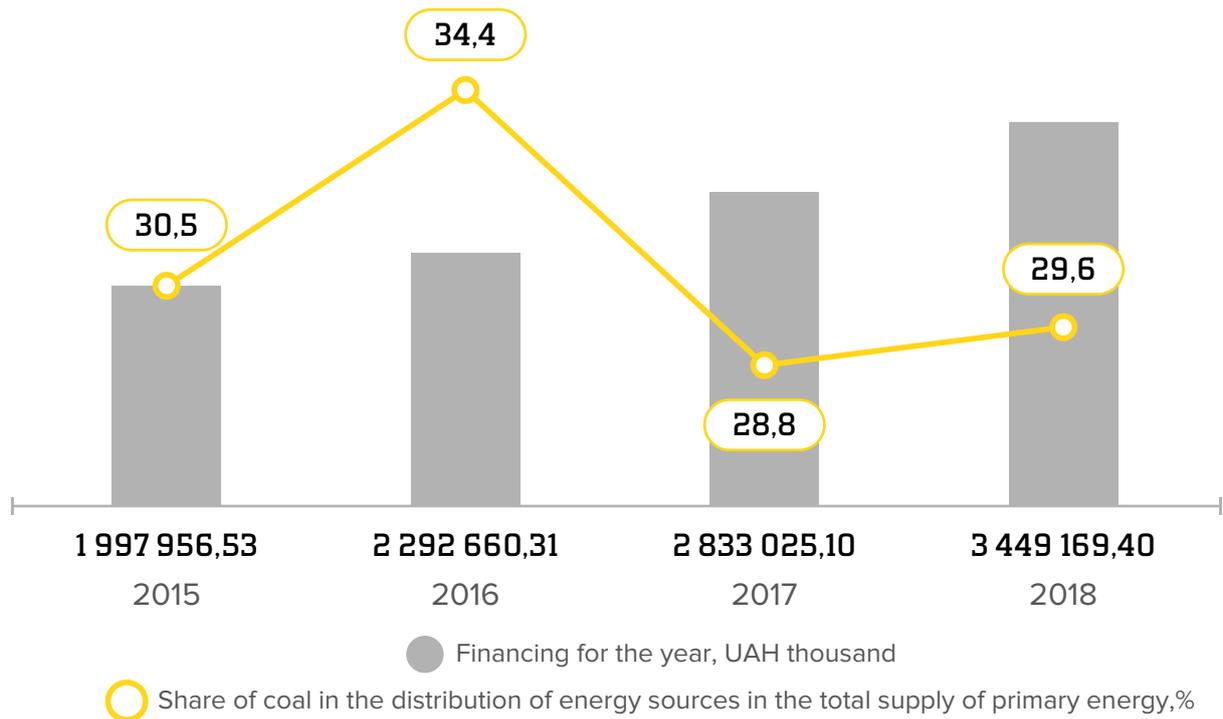
*volume of production for 2020 is indicated for nine months

226 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

227 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

Chart 5. Share of coal in the distribution of energy sources in the total supply of primary energy (%) vs. total financing (2015-2018)

Share of coal in the distribution of energy sources in the total supply of primary energy is **uneven**. In 2016 and 2018 there is a slight increase, and in 2017 – a significant decline.



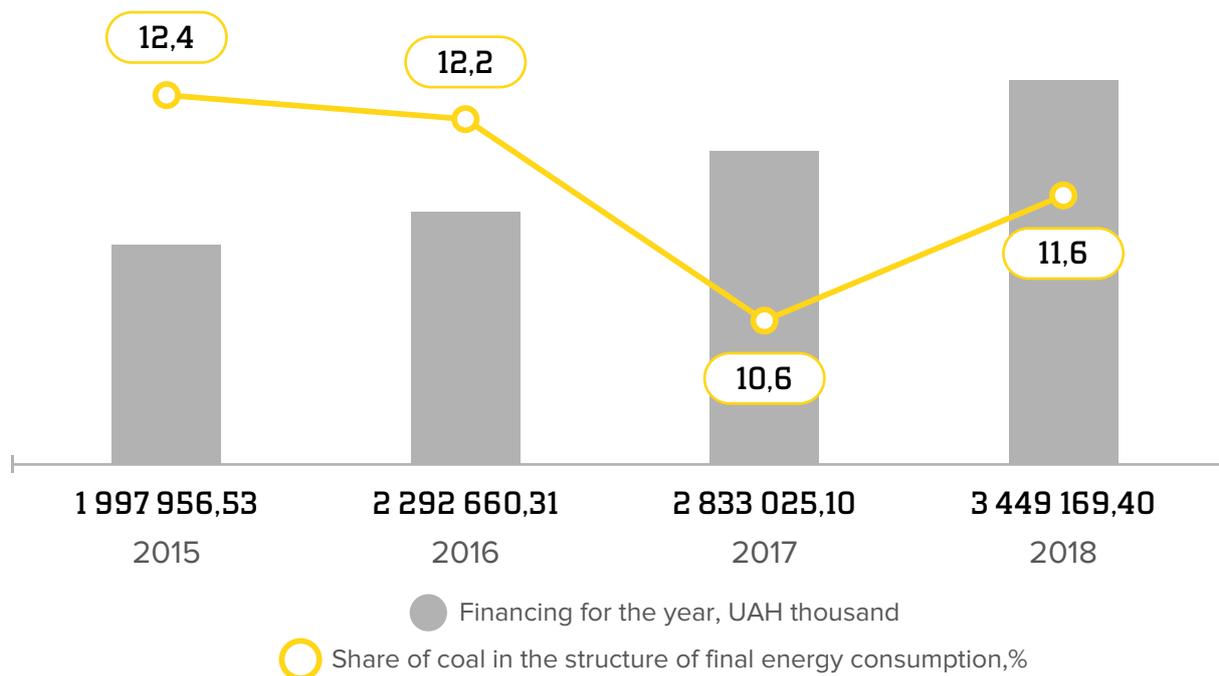
Source: Ministry of Energy²²⁸, State Statistics Service²²⁹

228 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

229 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

Chart 6. Share of coal in the structure of final energy consumption (%) vs. total financing (2015 -2018)

Share of coal in the structure of final consumption is **uneven**.
There is a decline in 2017 and a slight increase in 2018.



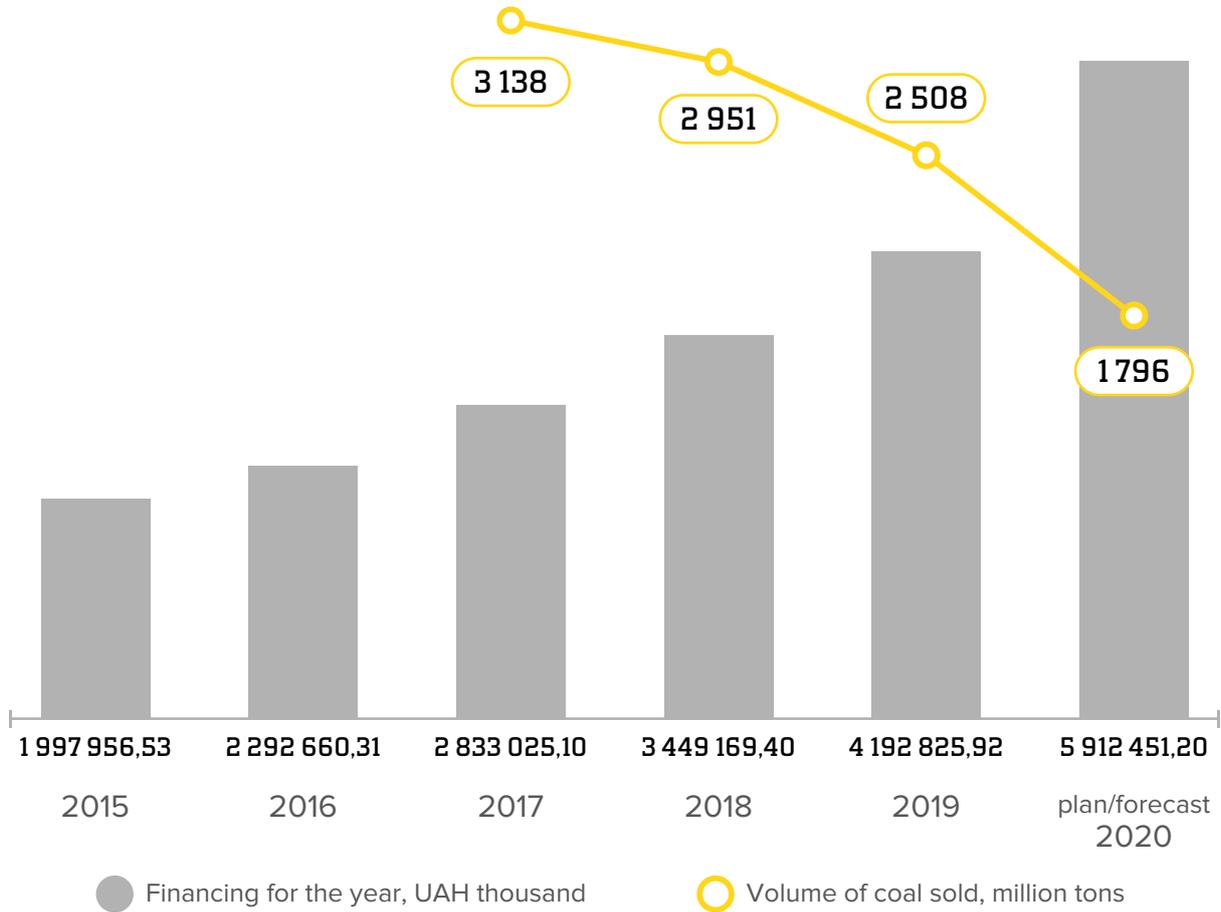
Source: Ministry of Energy²³⁰, State Statistics Service²³¹

230 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

231 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

**Chart 7. Volume of sold coal products to total expenditures
(for 2020 data are provided for 8 months)**

The volume of sold marketable products is **steadily falling**.



Source: Ministry of Energy^{232, 233}

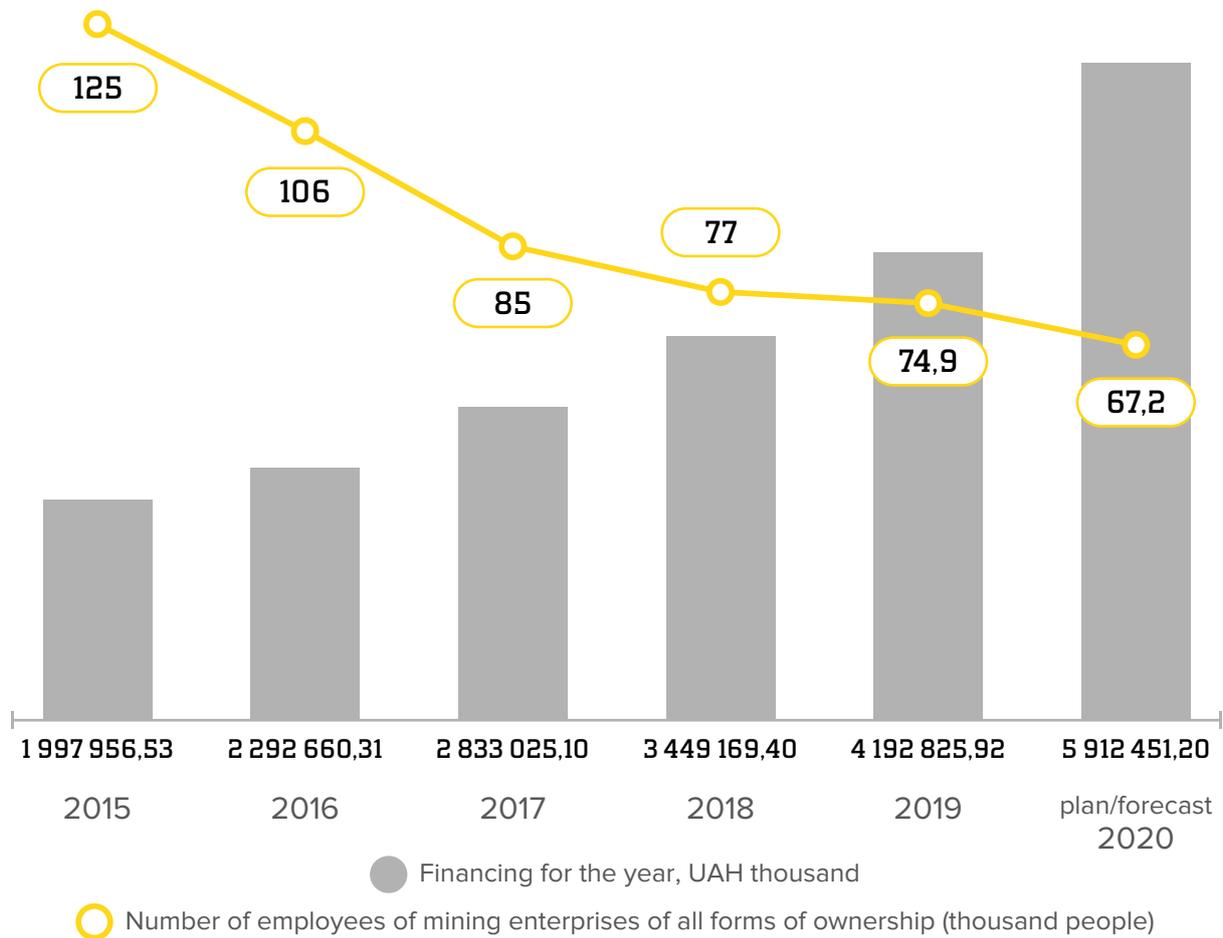
*volume of production for 2020 is indicated for eight months

232 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

233 Ministry of Energy. Open Data Portal. Information on marketable coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

Chart 8. Number of employees vs. total financing (2015-2018)

Number of employees of mining enterprises of all forms of ownership (thousands of people) is **falling sharply**.



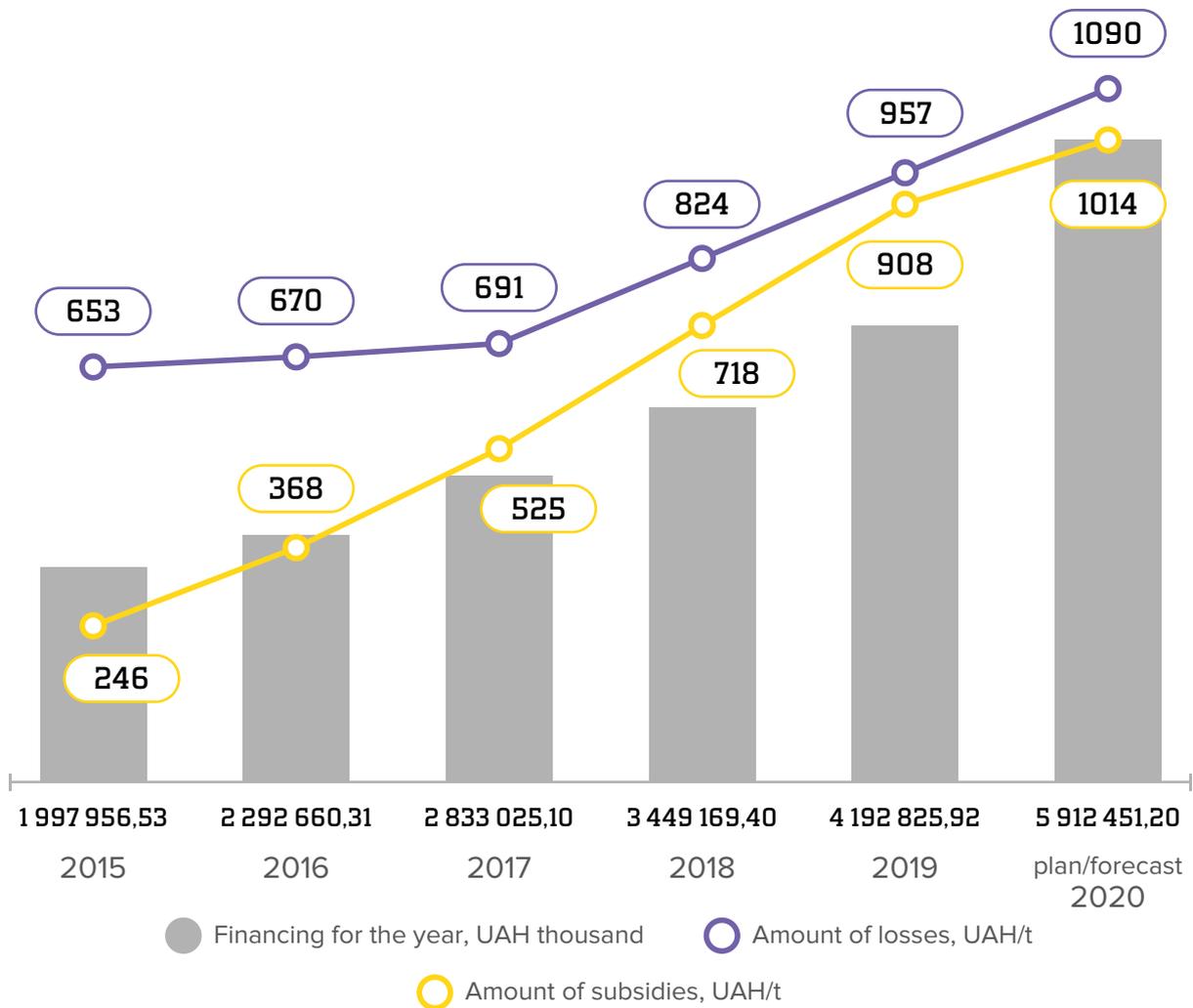
Source: Ministry of Energy²³⁴, State Statistics Service²³⁵

234 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

235 State Statistics Service. Average number of full-time employees by type of economic activity in industry. URL: http://www.ukrstat.gov.ua/operativ/operativ2018/gdn/Sok_pr/Arch_sok_pr_u.htm

Chart 9. Losses and subsidies per 1 ton of production vs. total financing (2015 -2020)

Profit/loss of state-owned mines and subsidies per 1 ton of production



Source: Ministry of Energy^{236, 237}

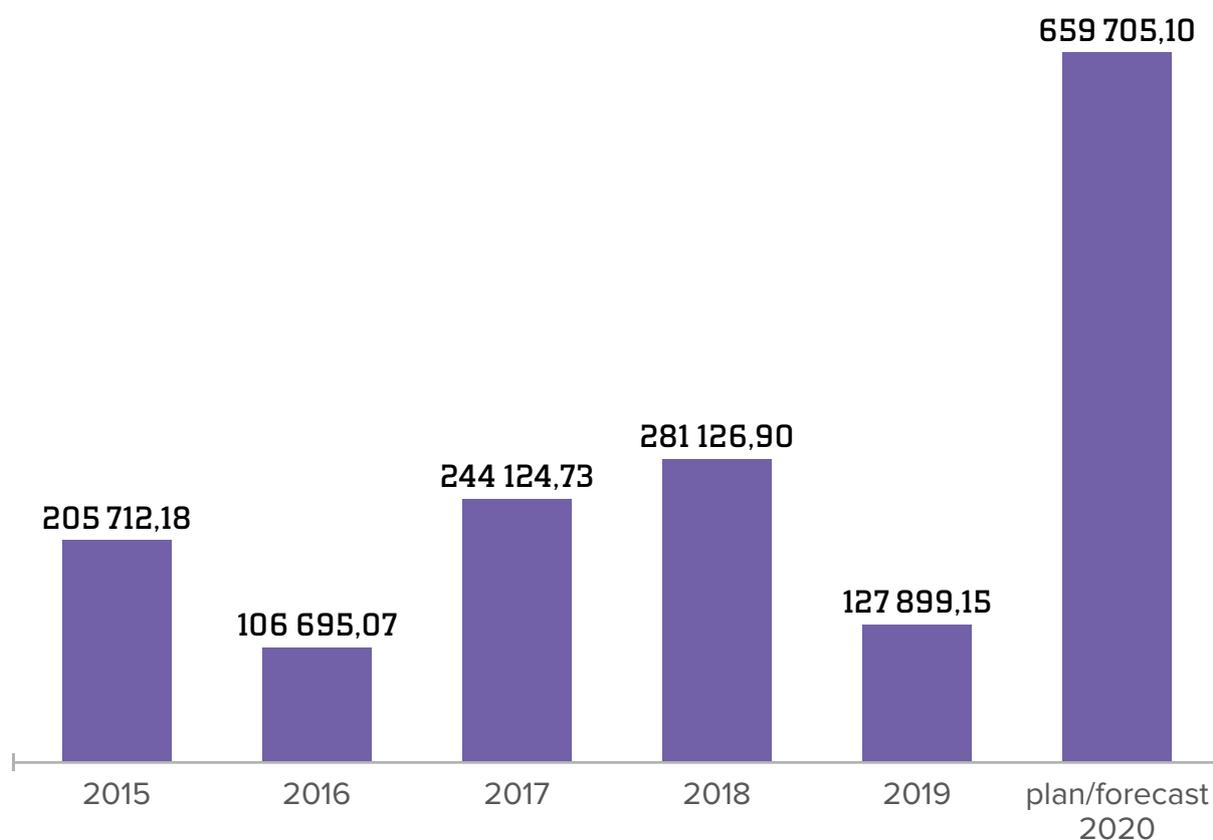
236 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

237 Official Facebook page of the Ministry of Energy. URL: <https://www.facebook.com/minecoenergy/photos/a.1096844767038465/2872039699518954/?type=3&theater>

ANNEX 2

Assessment of budget program 2401070 "Measures to liquidate unpromising coal mining enterprises" according to the indicators selected in the methodology, 2015 - 2020

Chart 1. Financing under budget program 1101070 (24011070), UAH thousand



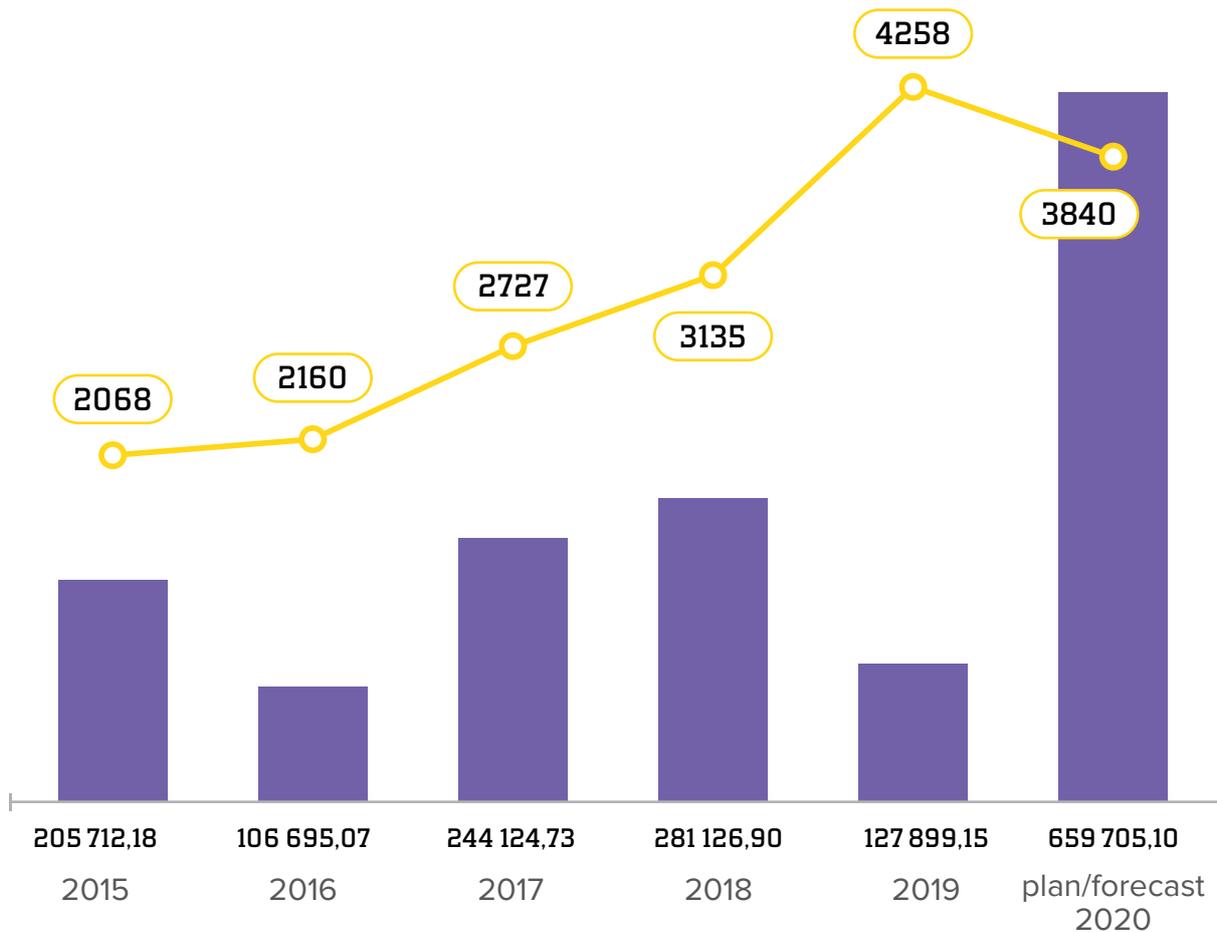
Data: Ministry of Energy²³⁸

Chart 2. Financing of budget program 1101070 (24011070), UAH thousand vs. cost of 1 ton of extracted coal (2015 -2020)

Average cost of 1 ton of coal mined in state-owned mines is **growing steadily**.

Decrease in funding under 2019 program coincided with a sharp increase in cost. But in 2016 such an effect was not observed.

Indicator dynamics: **negative**.



● Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)

○ Cost, UAH/t

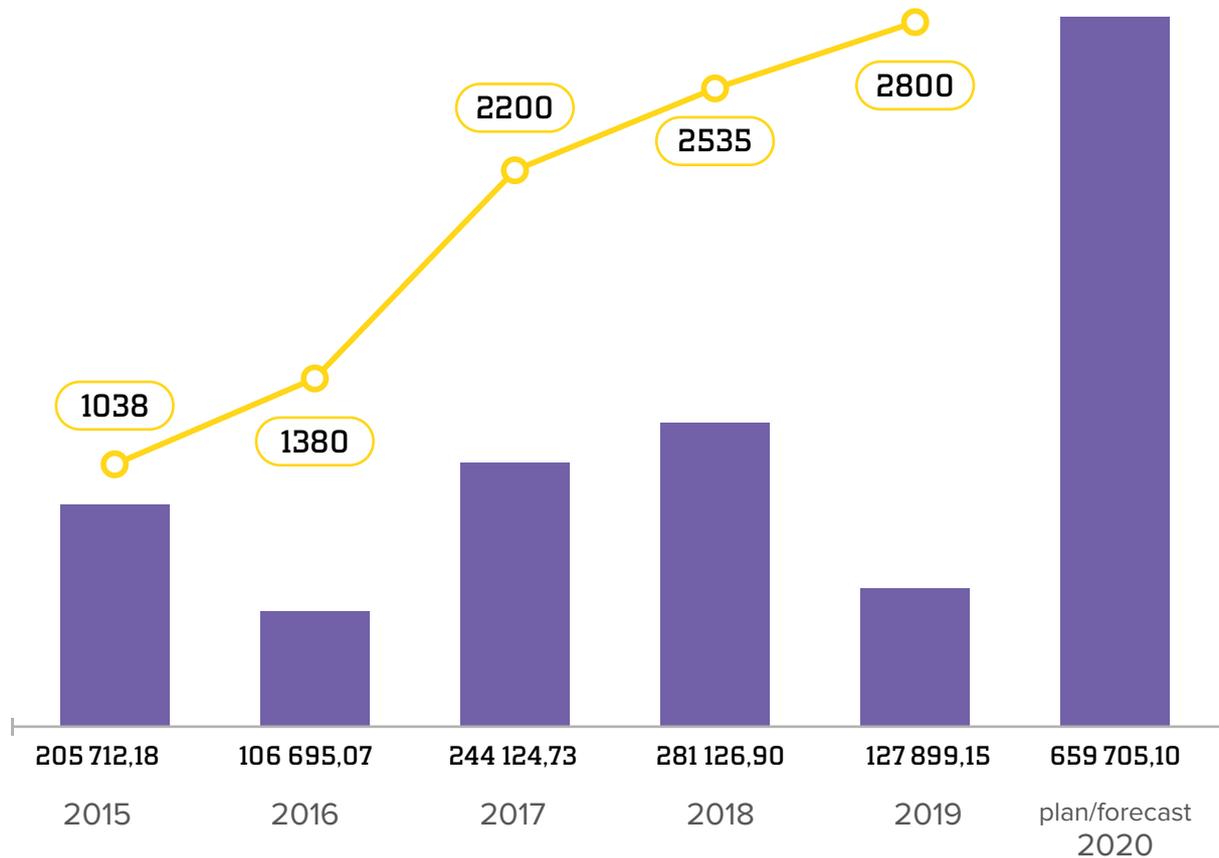
Data: Ministry of Energy^{239, 240}

239 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

240 Deputy Minister of Energy's Facebook page//URL: <https://www.facebook.com/photo?fbid=2822049804734673&set=pcb.2822050531401267>

Chart 3. Financing of budget program 1101070 (24011070), UAH thousand vs. indicative price of 1 ton of coal (2015 -2020)

The indicative price for coal products is **growing steadily**.
(set by the Ministry (excluding VAT and transportation))



● Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)

○ Indicative (marginal) price, UAH/t

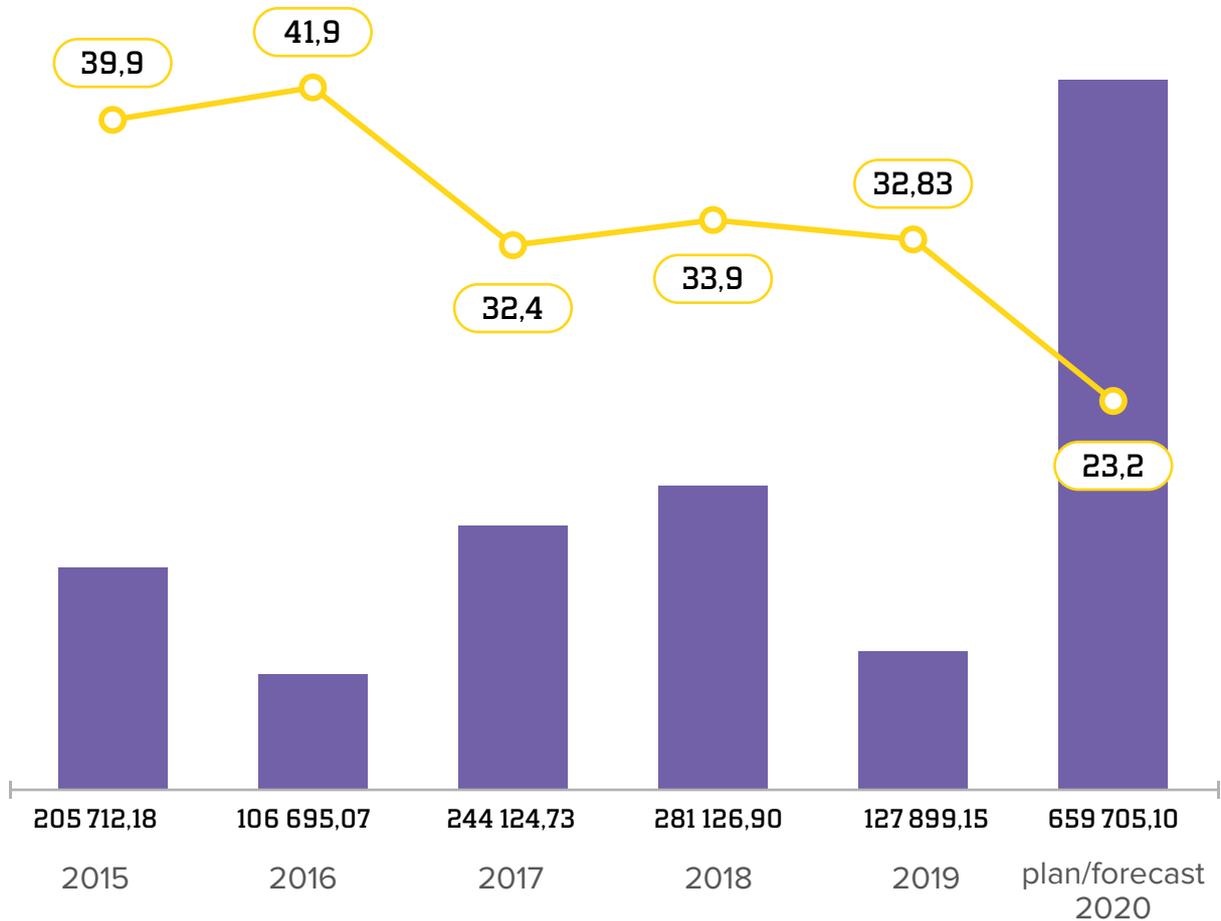
Data: Ministry of Energy^{241, 242}

241 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

242 Ministry of Energy. Minutes of meetings to determine the marginal price for coal products. URL: <http://mpe.kmu.gov.ua/minugol/control/uk/doccatalog/list?currDir=50043>

Chart 4. Financing of budget program 1101070 (24011070), UAH thousand vs. volume of production* (2015 -2020)

Coal production by year (2015–019, million tons) is **uneven**.
In 2016 and 2018, there is a slight increase.



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)
- Volume of coal production, million tons (State Statistics Service)

Data: Ministry of Energy²⁴³, State Statistics Service²⁴⁴

*volume of production for 2020 is indicated for 10 months

243 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

244 State Statistics Service. Production of industrial products by type 2019–2020. URL: http://www.ukrstat.gov.ua/operativ/operativ2016/pr/vr_rea_ovpp/vr_rea_ovpp_u/arh_vppv_u.html

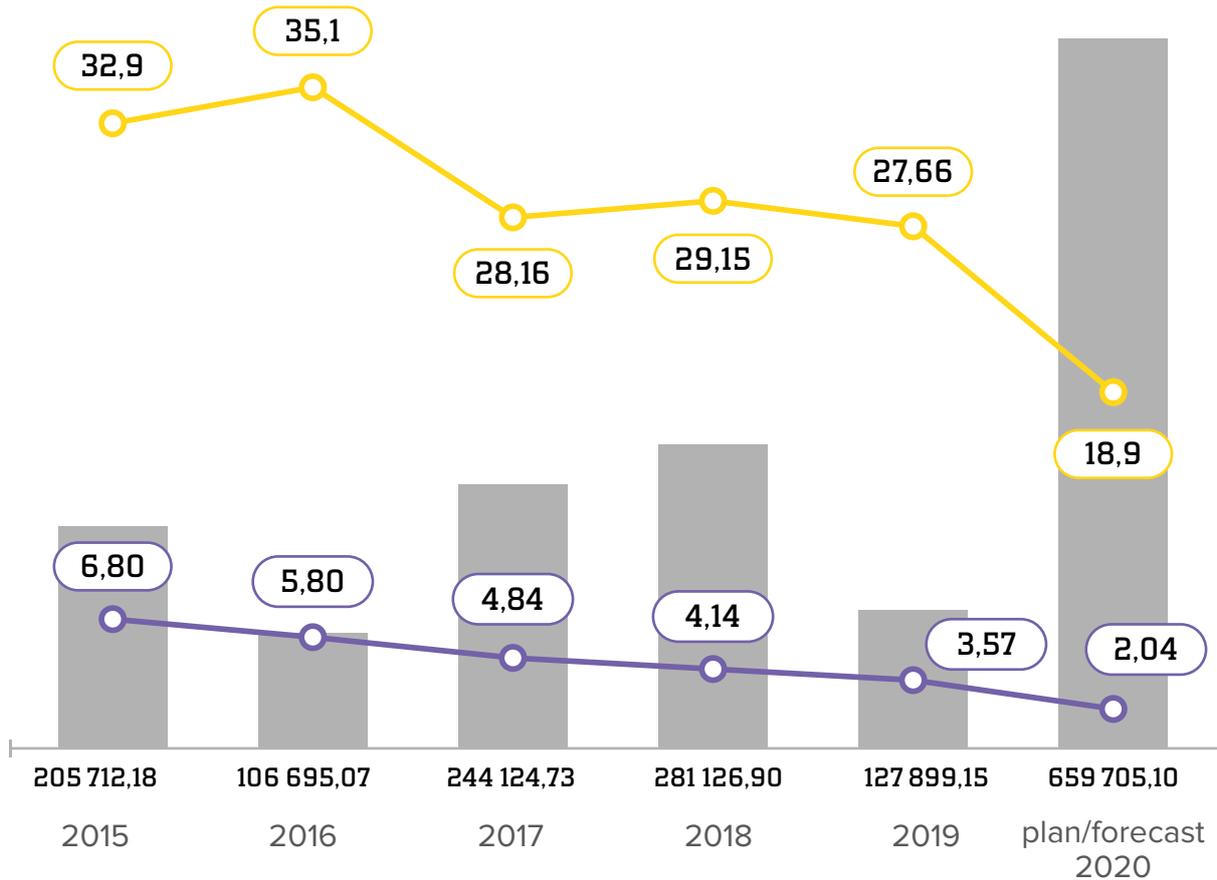
Chart 5. Financing of budget program 1101070 (24011070), UAH thousand vs. volume of production* in terms of enterprises

Coal production in terms of subordination of enterprises (million tons).

Coal production at coal companies is steadily **declining**, while private coal companies show a slight increase in 2016 and 2018.

There is no influence on the indicator.

Indicator dynamics: **negative**.



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)
- Production by enterprises subordinated to the Ministry of Energy, million tons
- Production by private mines, million tons

Data: Ministry of Energy^{245, 246}

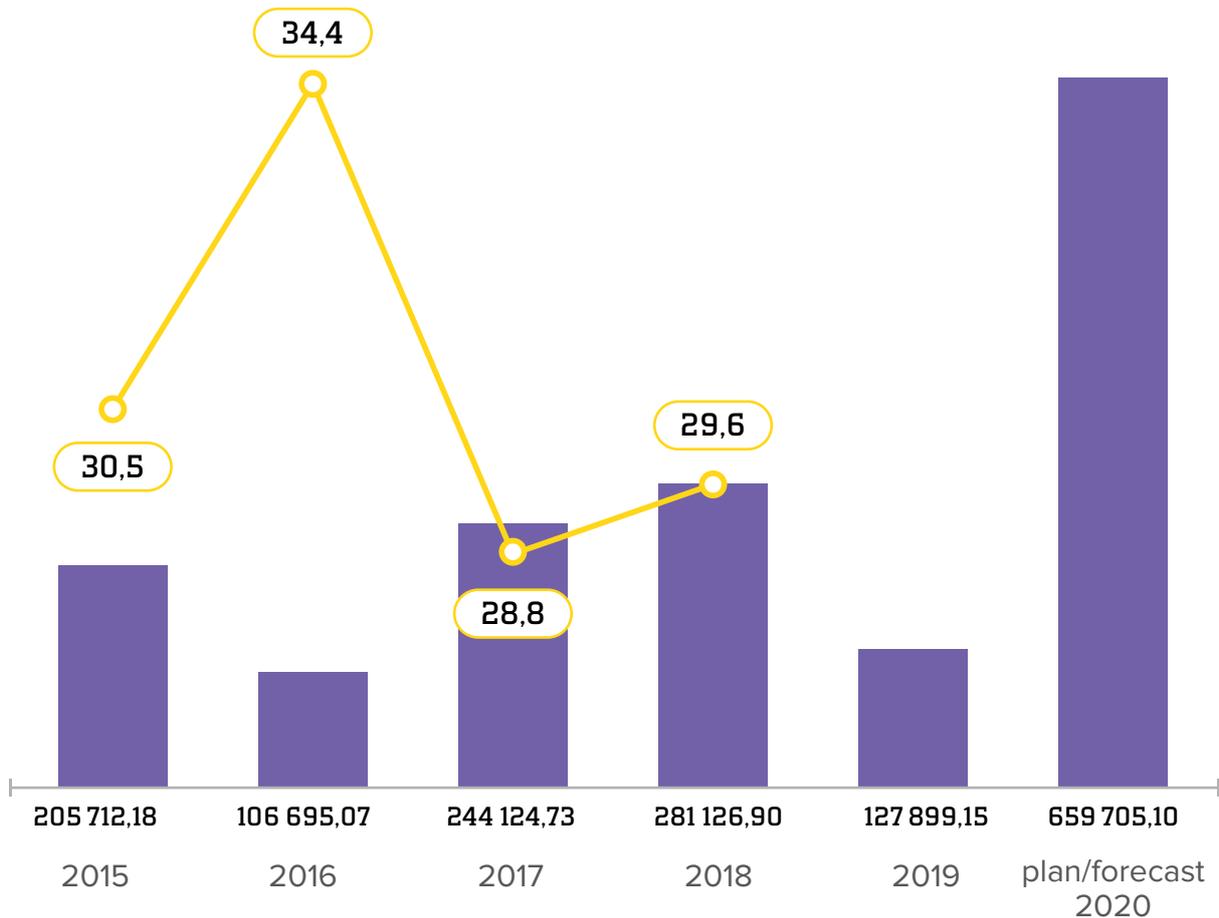
*volume of production for 2020 is indicated for nine months

245 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

246 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

Chart 6. Financing of budget program 1101070 (24011070), UAH thousand vs. share of coal in the distribution of energy sources in the total supply of primary energy

Share of coal in the distribution of energy sources in the total supply of primary energy is **uneven**. In 2016 and 2018 there is a slight increase, and in 2017– a significant decline.



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)
- Share of coal in the distribution of energy sources in the total supply of primary energy, %

Data: Ministry of Energy²⁴⁷, State Statistics Service²⁴⁸

247 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

248 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

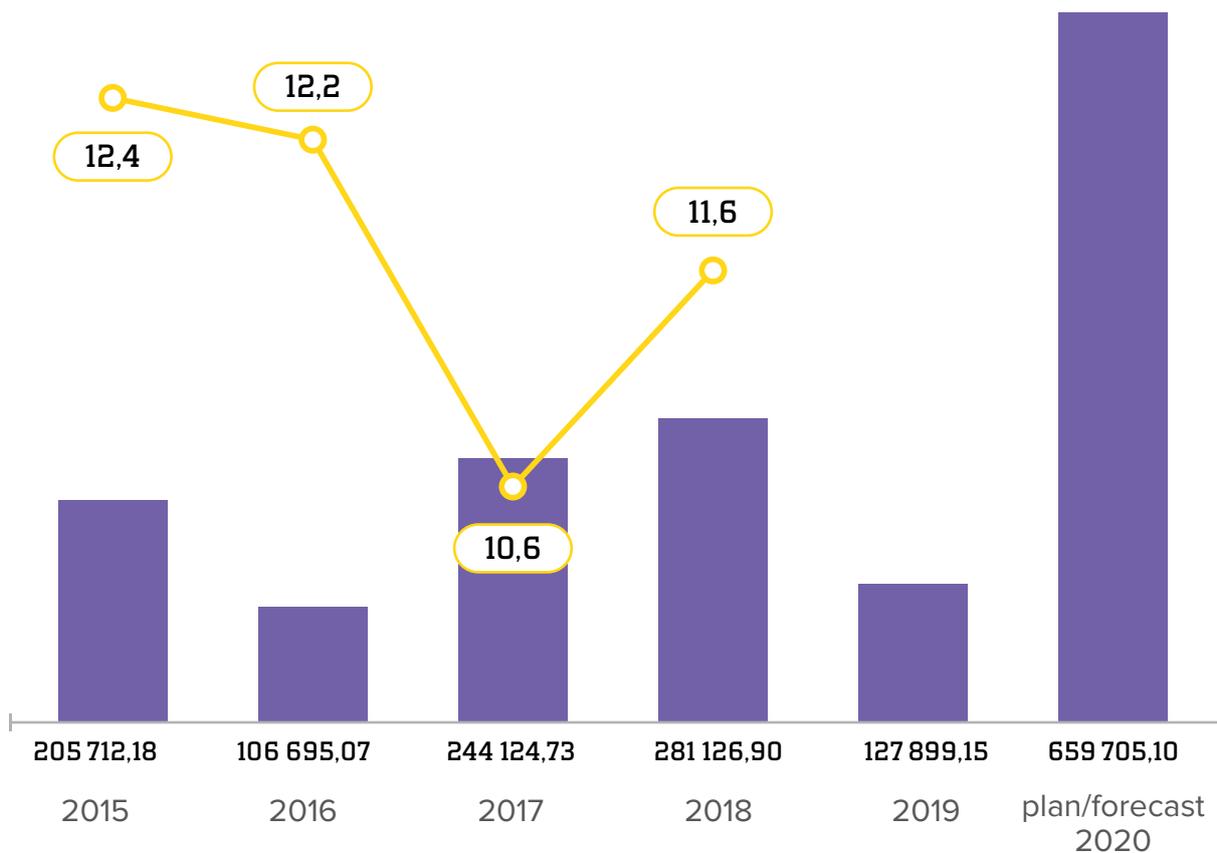
Chart 7. Financing of budget program 1101070 (24011070), UAH thousand vs. share of coal in the structure of final energy consumption

Share of coal in the structure of final consumption is **uneven**.

There is a decline in 2017 and a slight increase in 2018.

There is a coincidence of a decrease in funding with an increase in the share of coal in the electricity supply

Indicator dynamics: **stable**.



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)
- Share of coal in the structure of final energy consumption, %

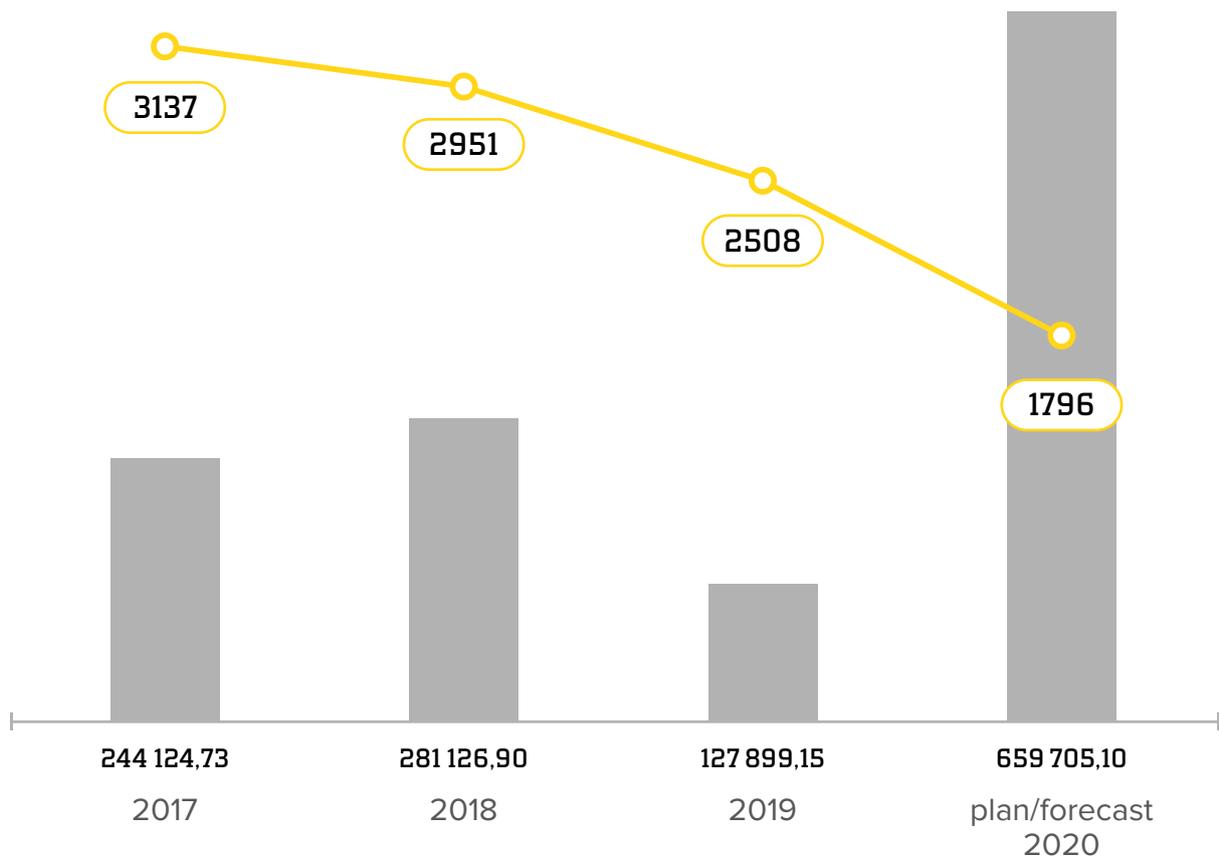
Data: Ministry of Energy²⁴⁹, State Statistics Service²⁵⁰

249 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

250 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

Chart 8. Volume* of coal sold vs. financing of budget program 1101070 (24011070), UAH thousand

The volume of sold coal products is **steadily falling**
 There is no direct relationship between the indicators.
 Indicator dynamics: negative.



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)
- Volume of coal sold, thousand tons

Data: Ministry of Energy^{251, 252}

*volume of coal for 2020 is indicated for eight months

251 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

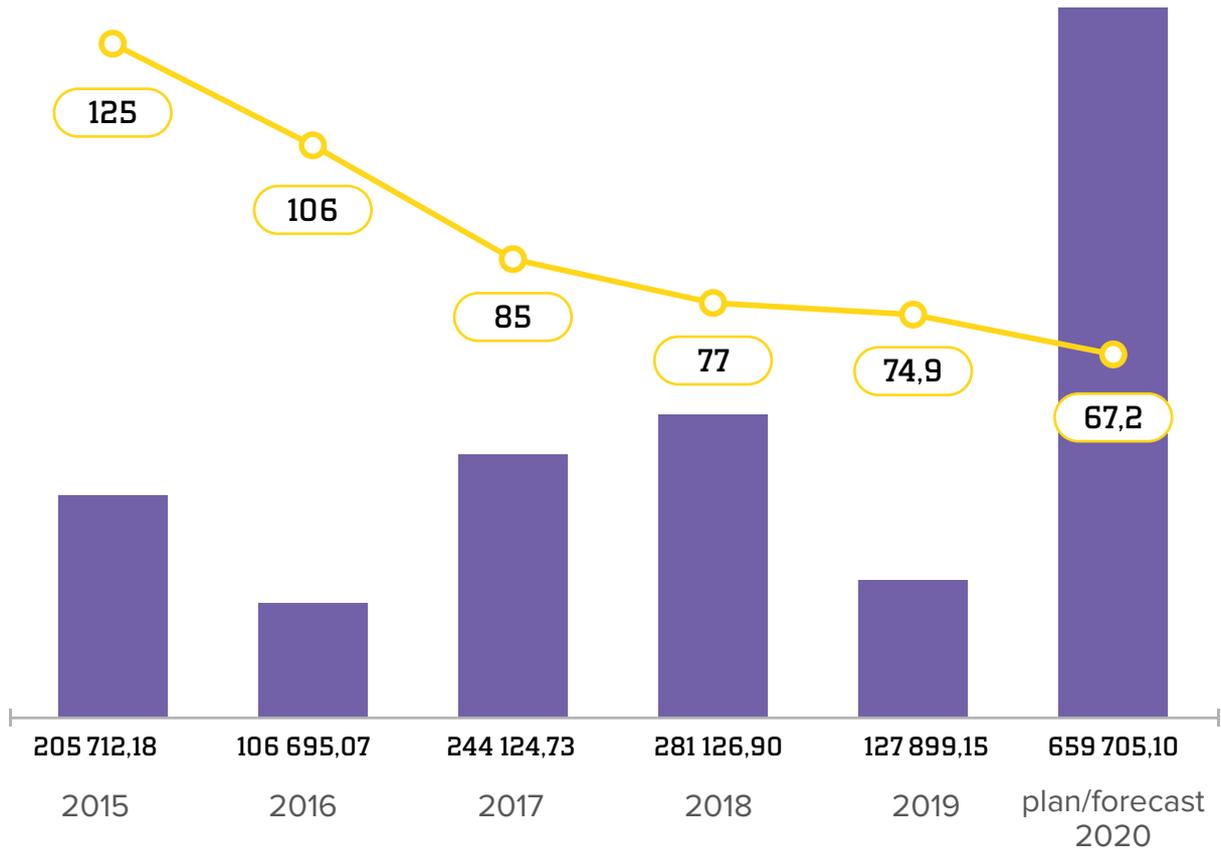
252 Ministry of Energy. Open Data Portal. Information on marketable coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

Chart 9. Funding of budget program 1101070 (24011070), UAH thousand vs. number of employees in the coal industry

Number of employees of mining enterprises of all forms of ownership (thousands of people) is **falling sharply**.

There is no influence on the indicator.

Indicator dynamics: **negative**.



- Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)
- Number of employees of mining enterprises of all forms of ownership (thousand people)

Data: Ministry of Energy²⁵³, State Statistics Service²⁵⁴

253 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

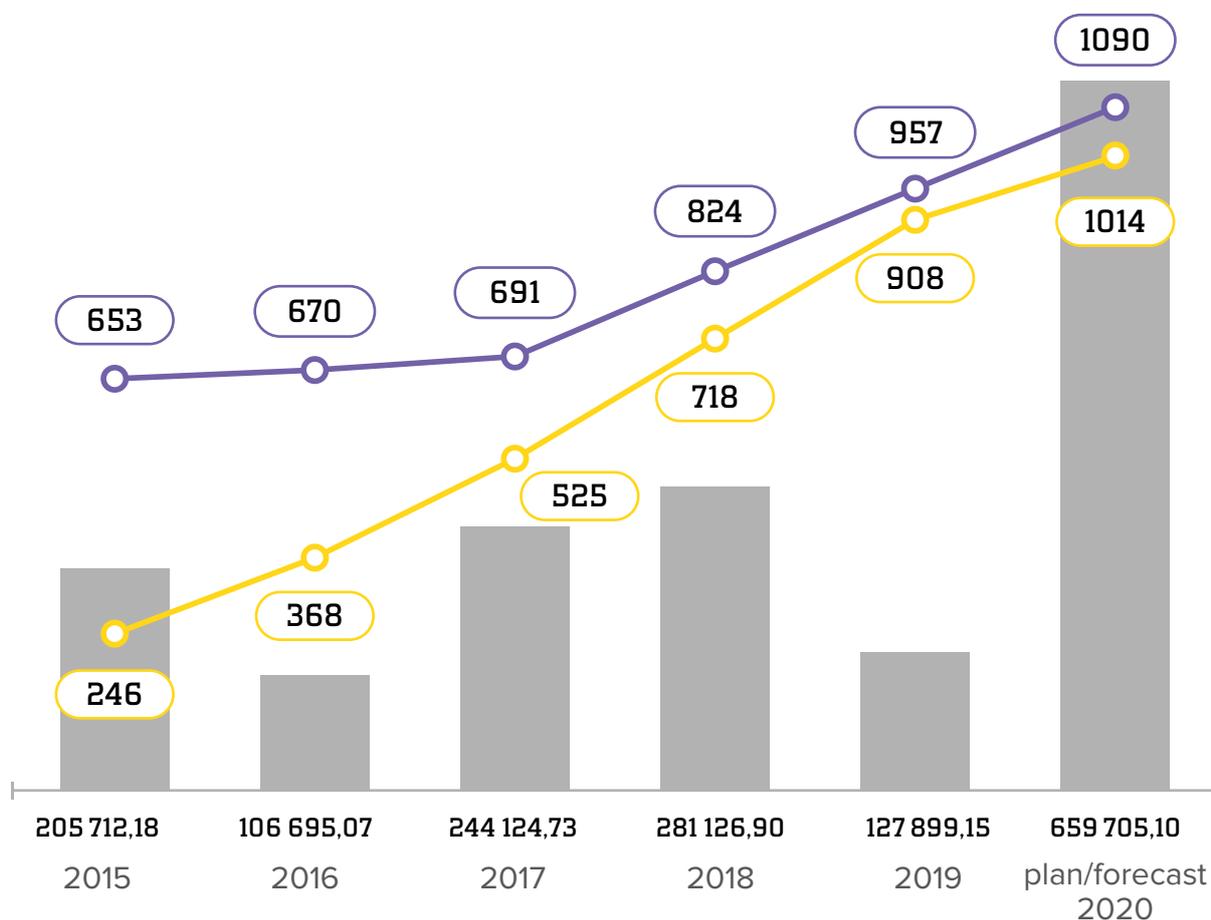
254 State Statistics Service. Average number of full-time employees by type of economic activity in industry. URL: http://www.ukrstat.gov.ua/operativ/operativ2018/gdn/Sok_pr/Arch_sok_pr_u.htm

Chart 10. Financing of budget program 1101070 (24011070), UAH thousand vs. level of losses and subsidies per 1 ton of production

Profit/loss of state-owned mines and subsidies per 1 ton of production

There is no influence on the indicator.

Indicator dynamics: **negative**.



● Restructuring of the coal and peat industry in terms of expenditures for the preparation of coal mining enterprises for liquidation (2015-2017), Liquidation of unprofitable coal mining and coal processing enterprises (2018-2019), Measures to liquidate unpromising coal mining enterprises (2020)

○ Amount of losses, UAH/t

○ Amount of subsidies, UAH/t

Data: Ministry of Energy^{255, 256}

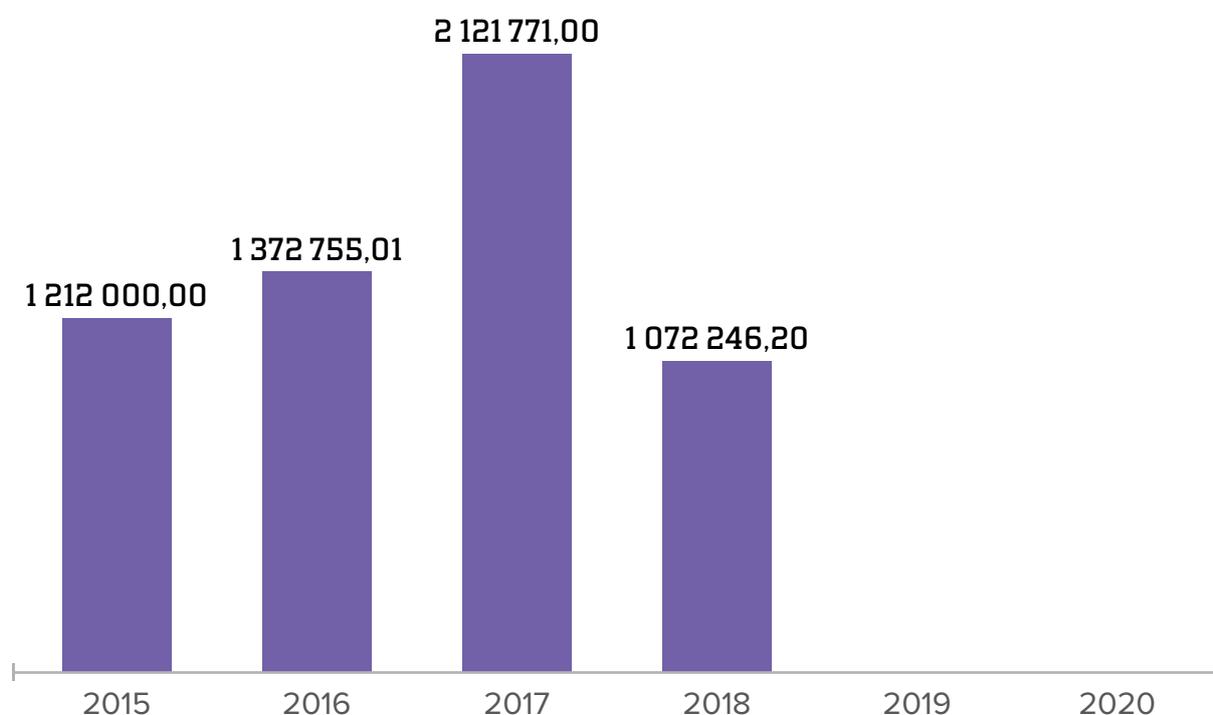
255 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-202. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

256 Official Facebook page of the Ministry of Energy. URL: <https://www.facebook.com/minecoenergy/photos/a.1096844767038465/2872039699518954/?type=3&theater>

ANNEX 3

Assessment of program 110110 “State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products” according to the indicators selected in the methodology

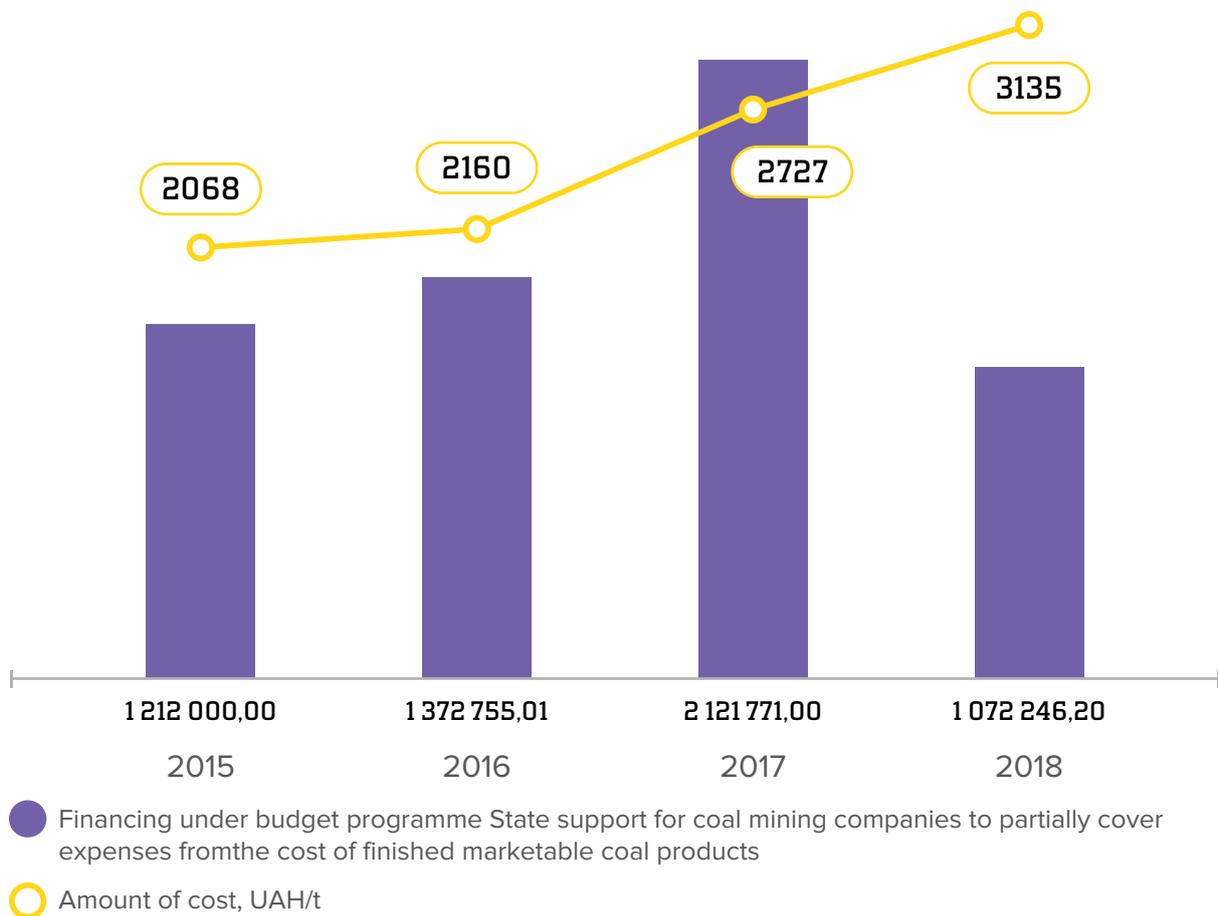
Chart 1. State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products, UAH thousand



Data: Ministry of Energy²⁵⁷

Chart 2. Financing of budget program 1101110 (UAH thousand) vs. cost of 1 ton of extracted coal (2015-2020)

Average cost of one ton of coal mined in state-owned mines is **growing steadily**.



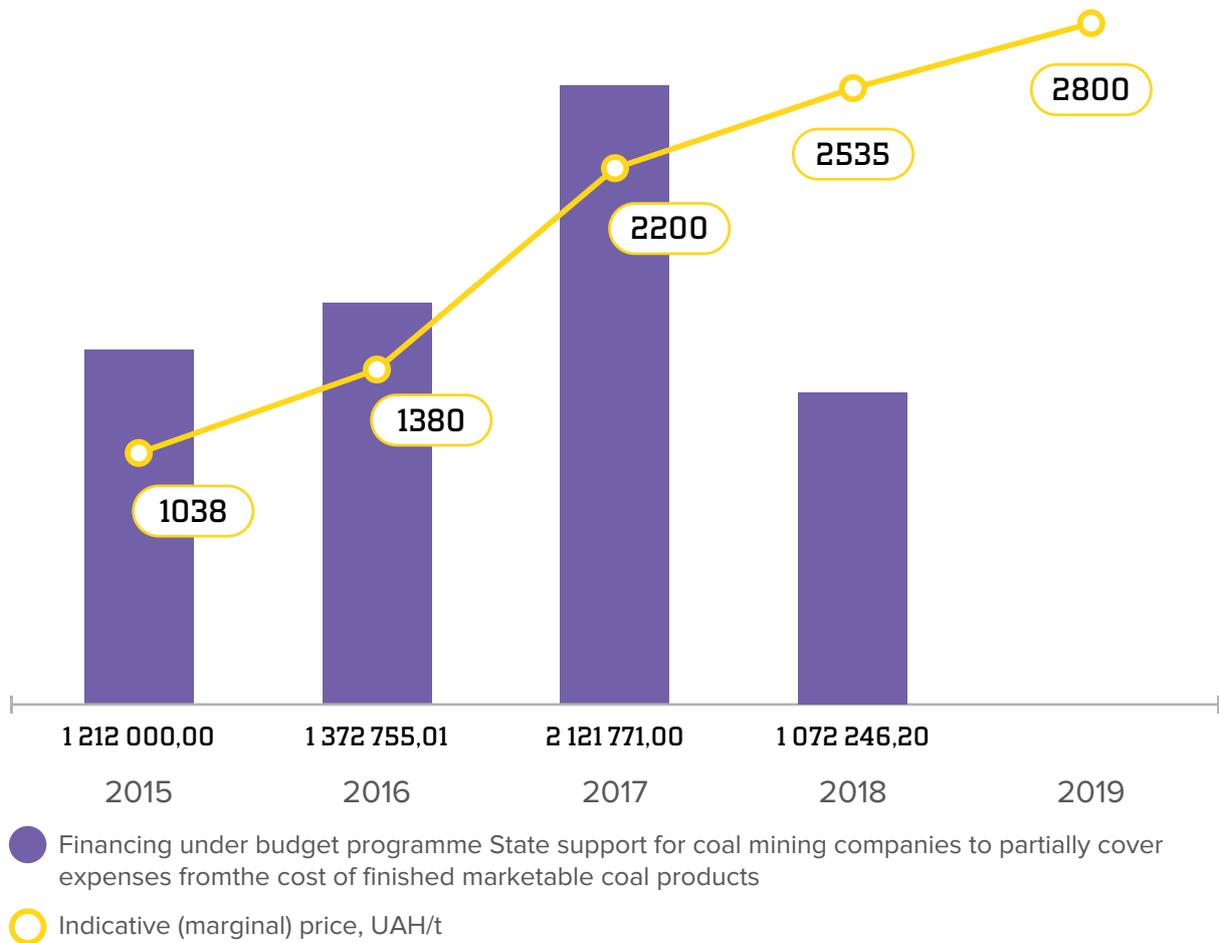
Data: Ministry of Energy^{258,259}

258 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

259 Deputy Minister of Energy's Facebook page. URL: <https://www.facebook.com/photo?fbid=2822049804734673&set=pcb.2822050531401267>

Chart 3. Financing of budget program 1101110 (UAH thousand) vs. indicative price of 1 ton of coal (2015-2020)

The indicative price for coal products is **growing steadily**.
 (set by the Ministry (excluding VAT and transportation))
 There is no influence on the indicator.
 Indicator dynamics: **negative**.



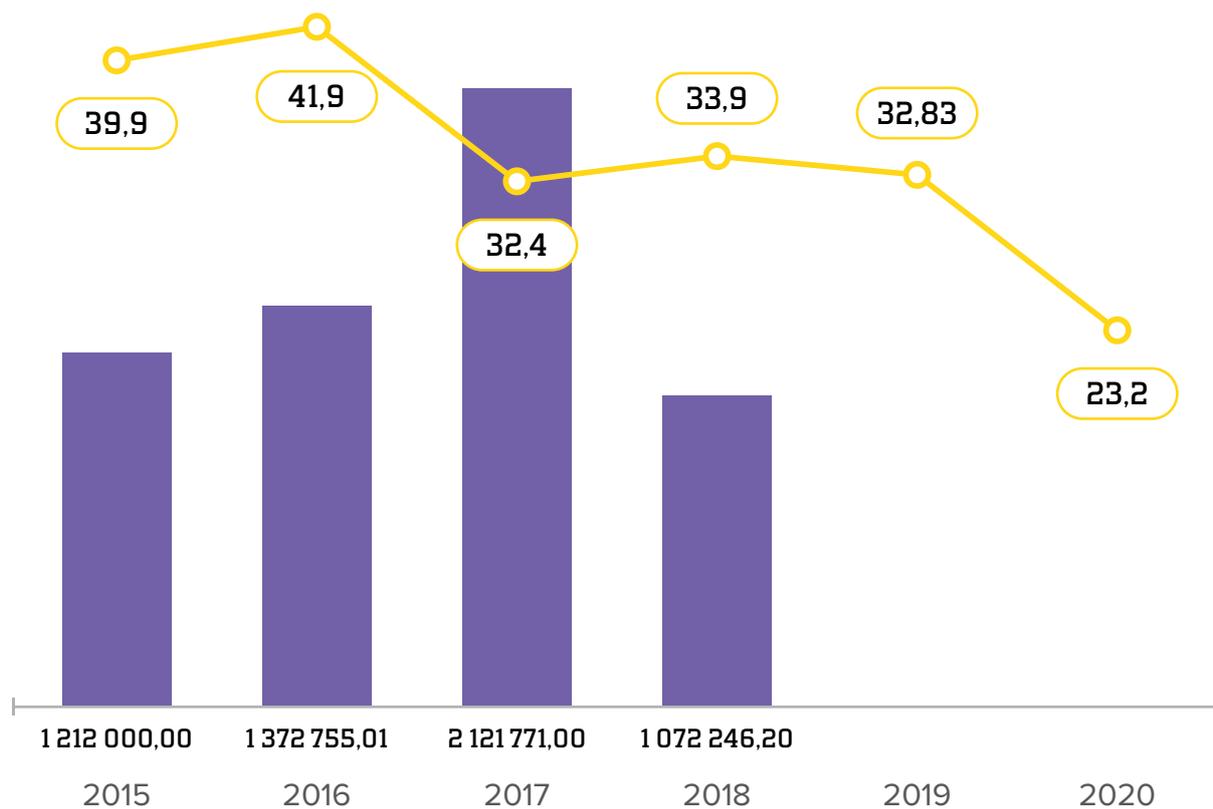
Data: Ministry of Energy^{260, 261}

260 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

261 Ministry of Energy. Minutes of meetings to determine the marginal price for coal products. URL: <http://mpe.kmu.gov.ua/minugol/control/uk/doccatalog/list?currDir=50043>

Chart 4. Financing of budget program 1101110 (UAH thousand) vs. production volumes (2015-2020)

Coal production by year (2015–019, million tons) is **uneven**.
In 2016 and 2018, there is a slight increase.



- Financing under budget programme State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products
- Volume of coal production, million tons (State Statistics Service)

Data: Ministry of Energy²⁶², State Statistics Service²⁶³

*volume of production for 2020 is indicated for 10 months

262 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

263 State Statistics Service. Production of industrial products by type 2019–2020. URL: http://www.ukrstat.gov.ua/operativ/operativ2016/pr/vr_rea_ovpp/vr_rea_ovpp_u/arh_vppv_u.html

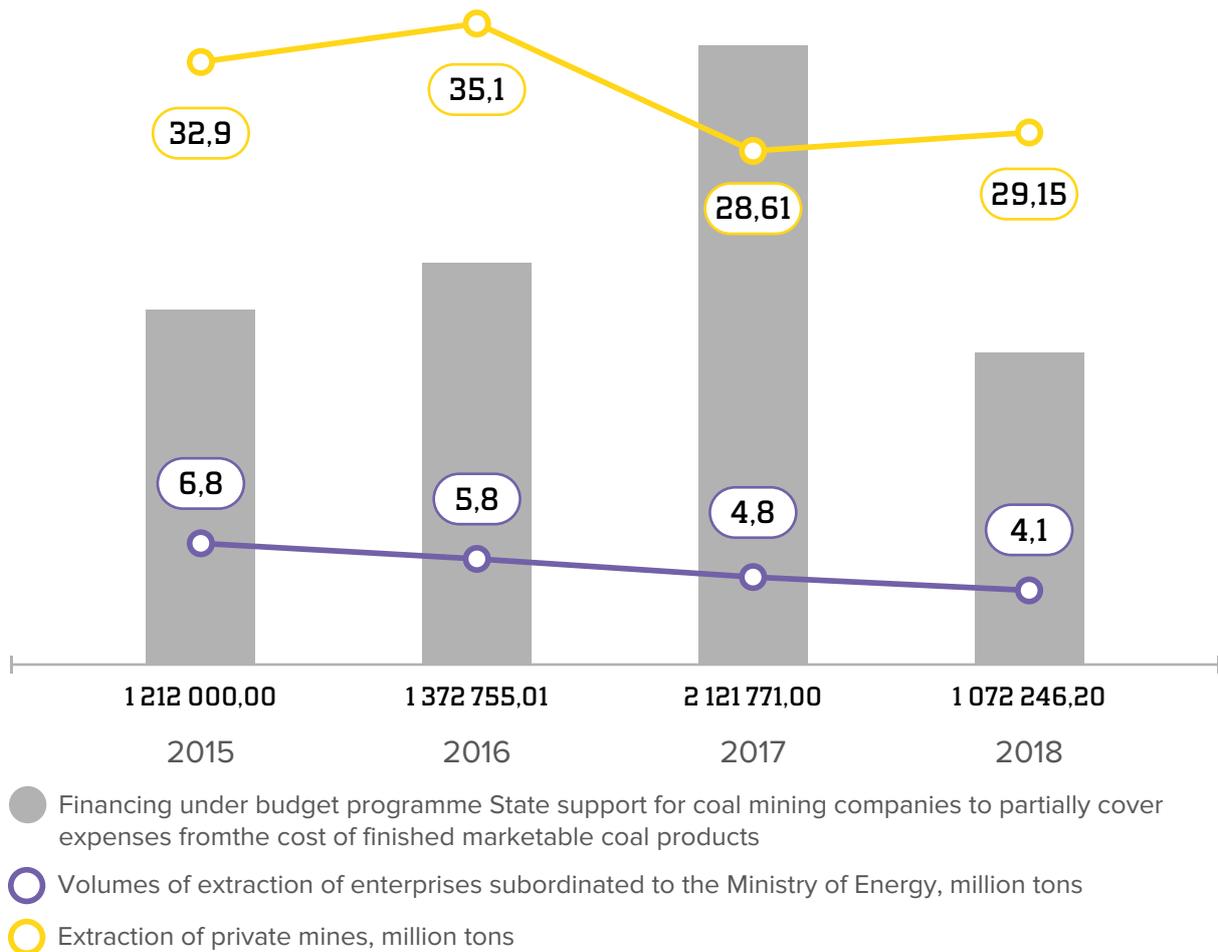
Chart 5. Financing of budget program 1101110 (UAH thousand) vs. volume * of production in terms of enterprises

Coal production in terms of subordination of enterprises (million tons).

Coal production at coal companies is steadily **declining**, while private coal companies show a slight increase in 2016 and 2018.

The sharp decline in production in 2017 coincides with an increase in funding under the state program.

Indicator dynamics: **negative**.



Data: Ministry of Energy^{264, 265}

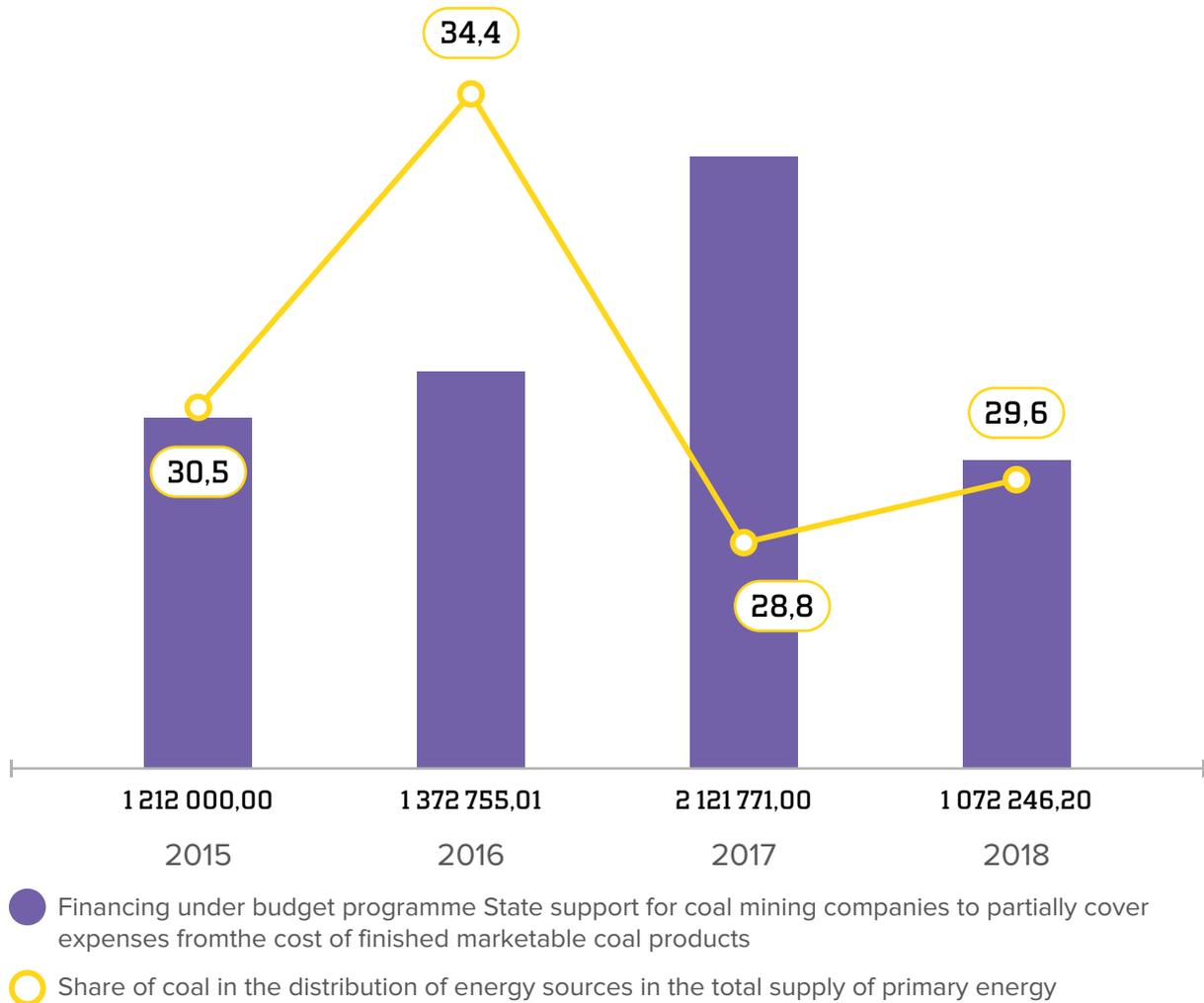
*volume of production for 2020 is indicated for 9 months

264 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

265 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

Chart 6. Financing of budget program 1101110 (UAH thousand) vs. share of coal in the distribution of energy sources in the total supply of primary energy

Share of coal in the distribution of energy sources in the total supply of primary energy is **uneven**. In 2016 and 2018 there is a slight increase, and in 2017– a significant decline.



Data: Ministry of Energy²⁶⁶, State Statistics Service²⁶⁷

266 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. // URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

267 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. // URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

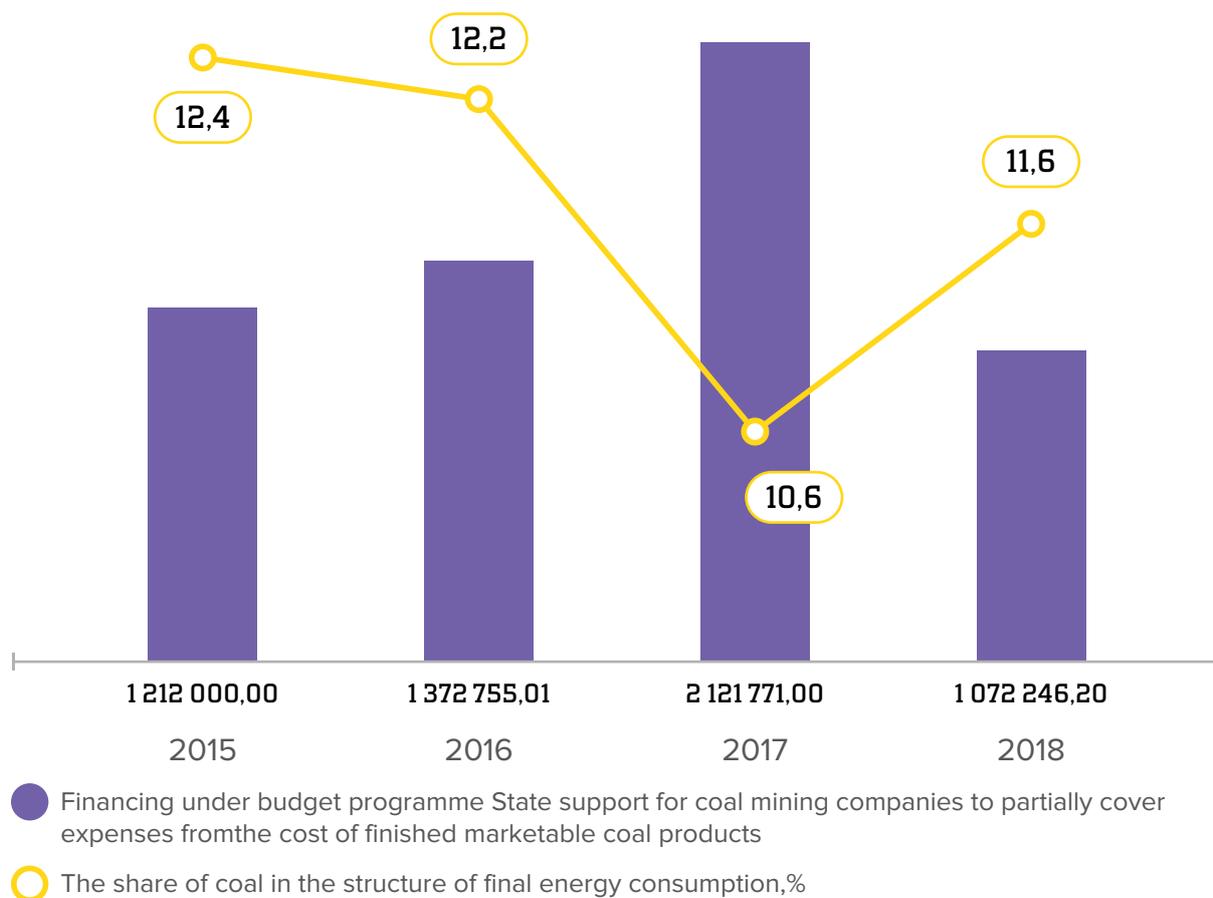
Chart 7. Financing of budget program 1101110 (UAH thousand) vs. share of coal in the structure of final energy consumption

Share of coal in the structure of final consumption is **uneven**.

There is a decline in 2017 and a slight increase in 2018.

The decrease in the share of coal in electricity generation and consumption in 2017 coincided with an increase in funding under the state program.

Indicator dynamics: **stable**.



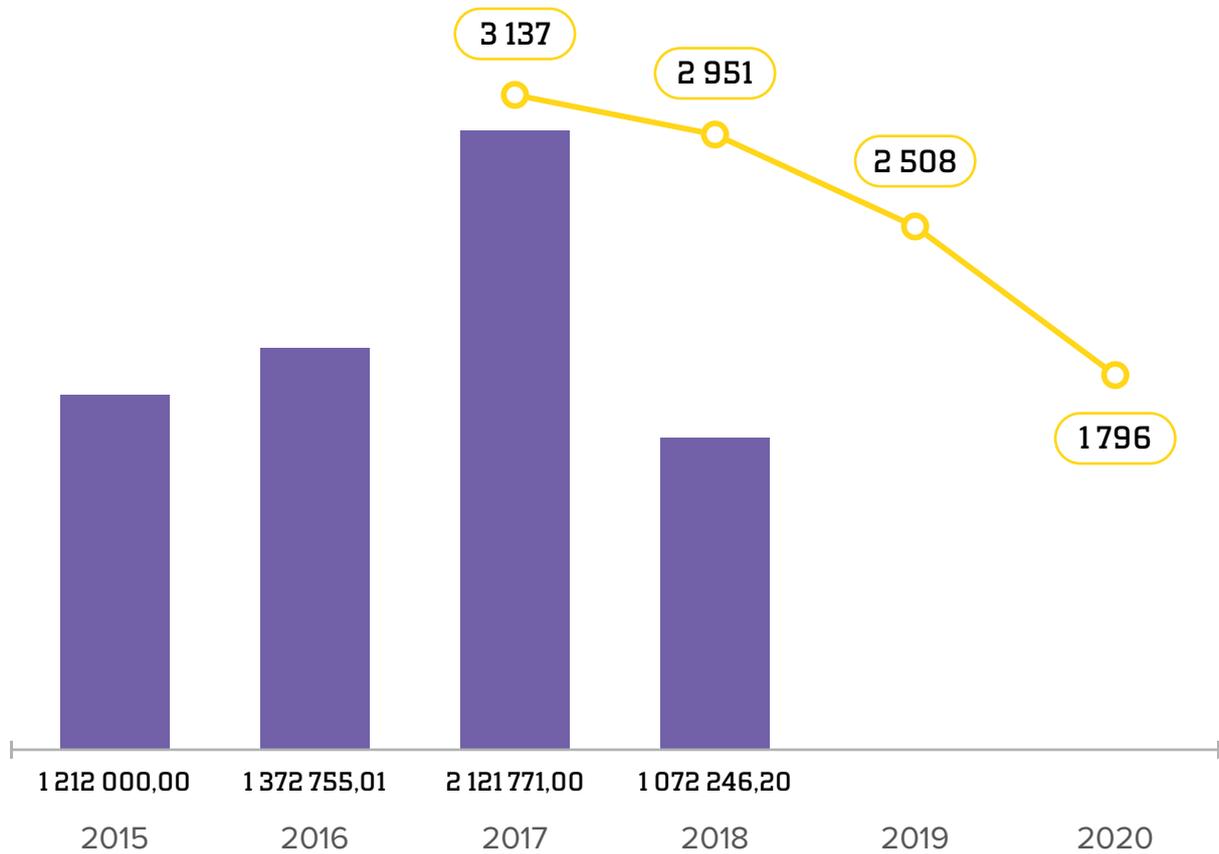
Data: Ministry of Energy²⁶⁸, State Statistics Service²⁶⁹

268 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

269 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

Chart 8. Volume* of sold marketable coal products vs. financing of budget program 1101110 (UAH thousand)

The dynamics of changes in the volume of sold marketable coal products is falling steadily.
 Indicator figures in only 2 years coincide by years, so it is impossible to determine the relationship
 Indicator dynamics: negative



- Financing under budget programme State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products
- Volume of coal sold, thousand tons

Data: Ministry of Energy^{270, 271}

*volume of production for 2020 is indicated for 8 months

270 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

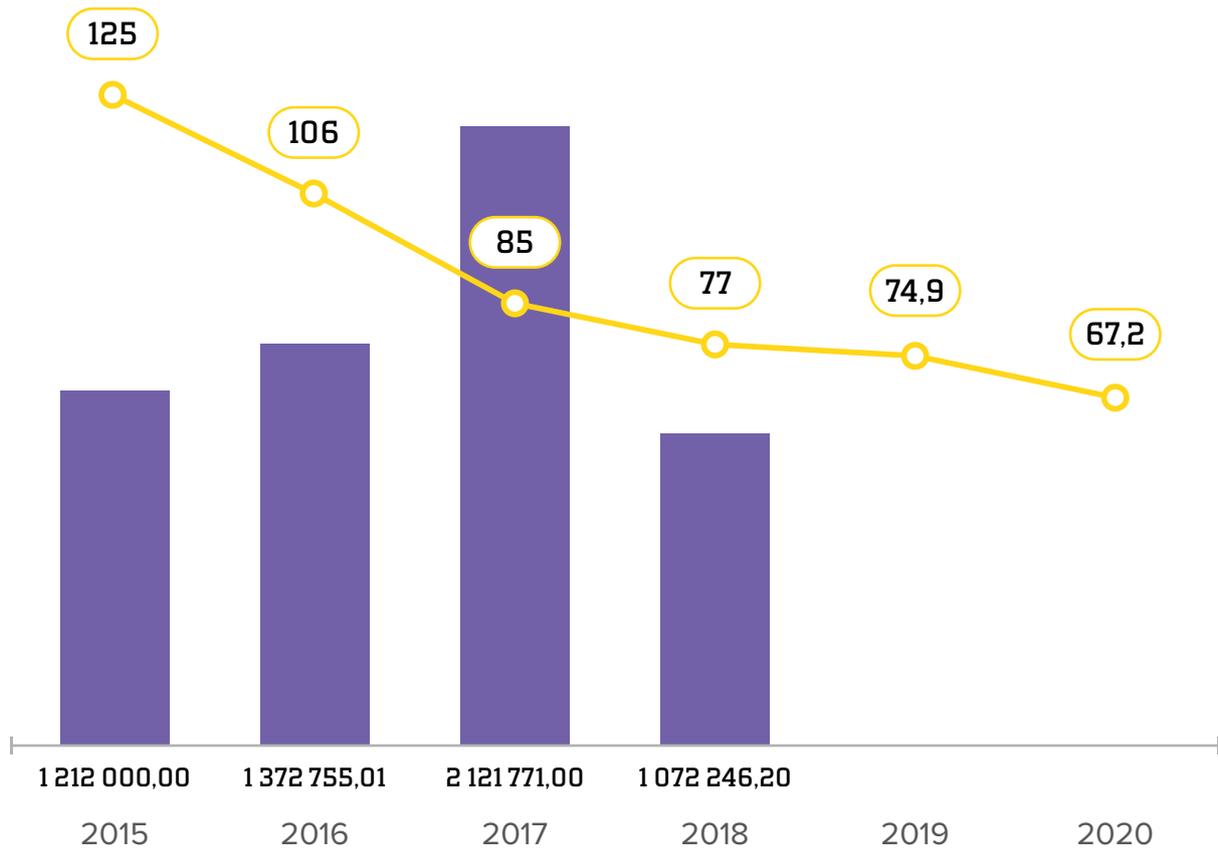
271 Ministry of Energy. Open Data Portal. Information on marketable coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

Chart 9. Financing of budget program 1101110 (UAH thousand) vs. number of employees in the coal industry

Number of employees of mining enterprises of all forms of ownership (thousands of people) is **falling sharply**.

There is no influence on the indicator.

Indicator dynamics: **negative**.



● Financing under budget programme State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products

○ Number of employees of mining enterprises of all forms of ownership (thousand people)

Data: Ministry of Energy²⁷², State Statistics Service²⁷³

272 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

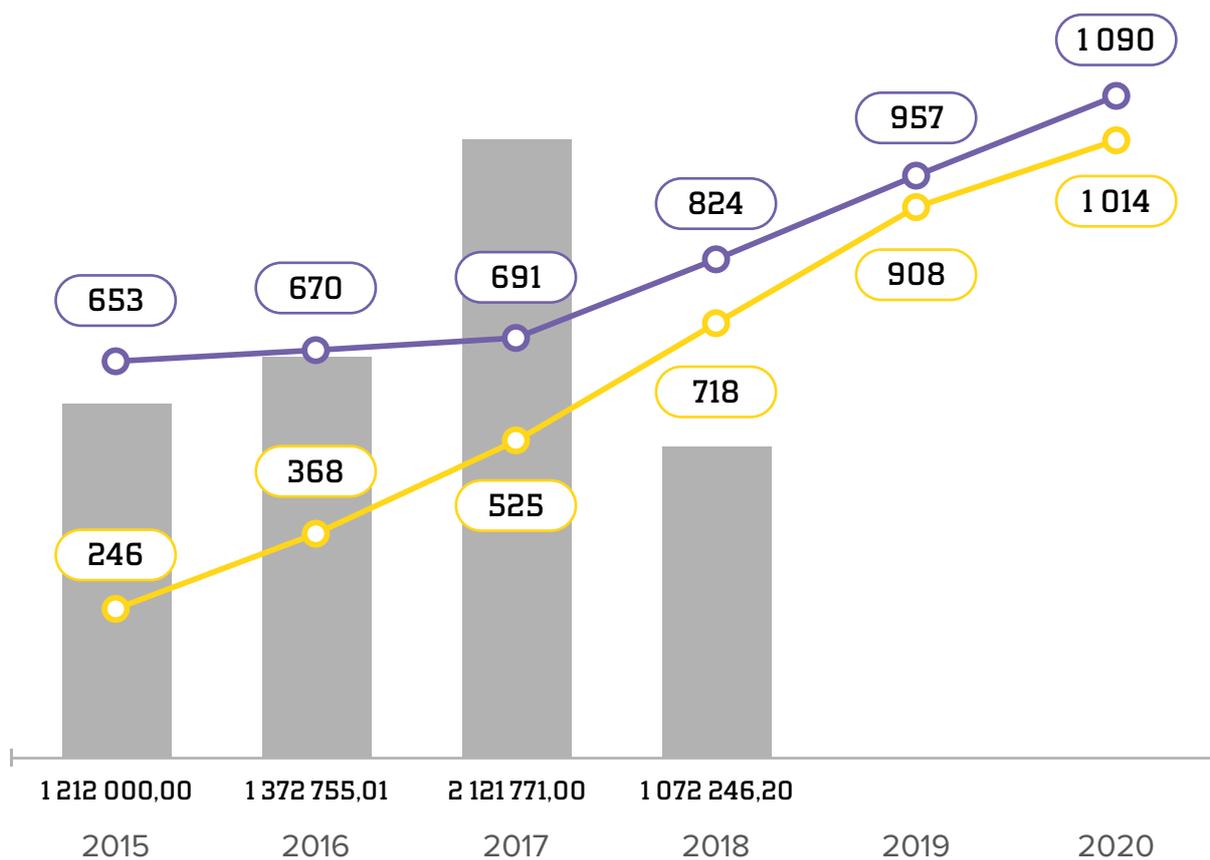
273 State Statistics Service. Average number of full-time employees by type of economic activity in industry. URL: http://www.ukrstat.gov.ua/operativ/operativ2018/gdn/Sok_pr/Arch_sok_pr_u.htm

Chart 10. Financing of budget program 1101110 (UAH thousand) vs. level of losses and subsidies per ton of production

Profit/loss of state-owned mines and subsidies per 1 ton of production

There is no influence on the indicator.

Indicator dynamics: **negative**.



● Financing under budget programme State support for coal mining companies to partially cover expenses from the cost of finished marketable coal products

○ Amount of losses, UAH/t

○ Amount of subsidies, UAH/t

Data: Ministry of Energy^{274, 275}

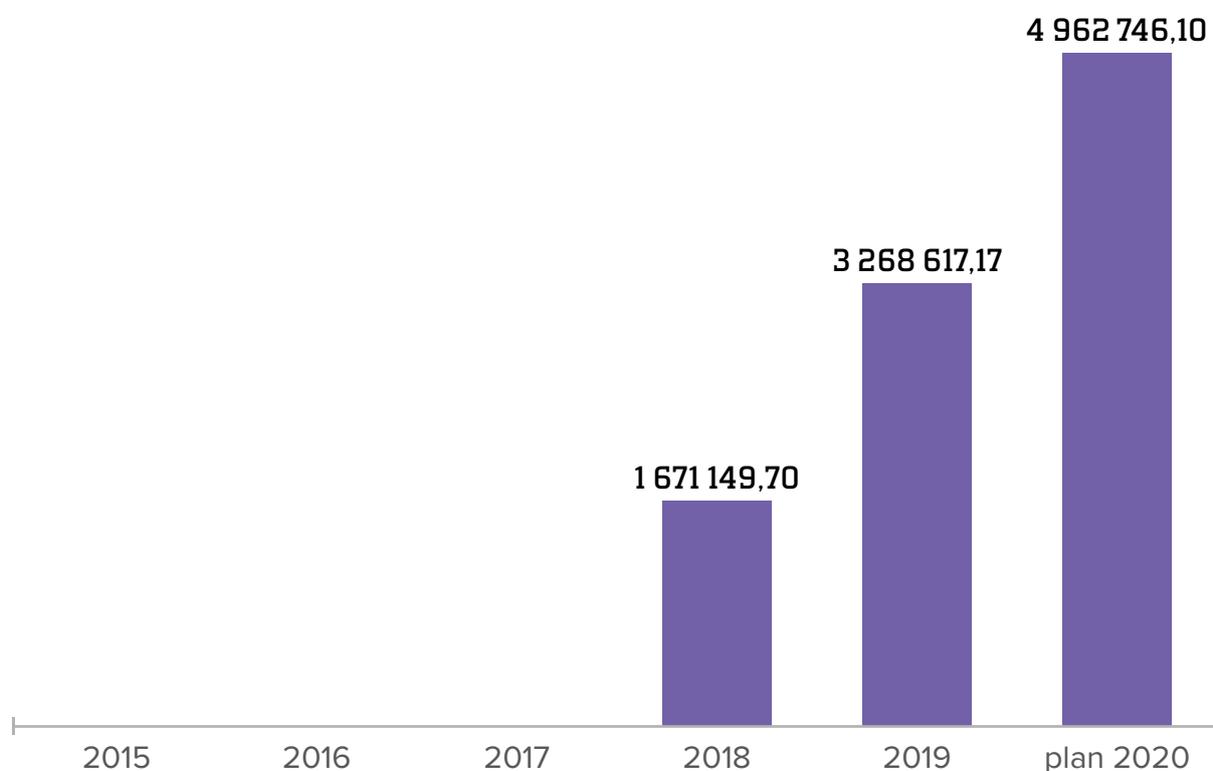
274 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015–2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

275 Official Facebook page of the Ministry of Energy. URL: <https://www.facebook.com/minecoenergy/photos/a.1096844767038465/2872039699518954/?type=3&theater>

ANNEX 4

Assessment of program 2401590 "Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry" (2018), "Restructuring of the coal industry (2019-2020) according to the indicators selected in the methodology

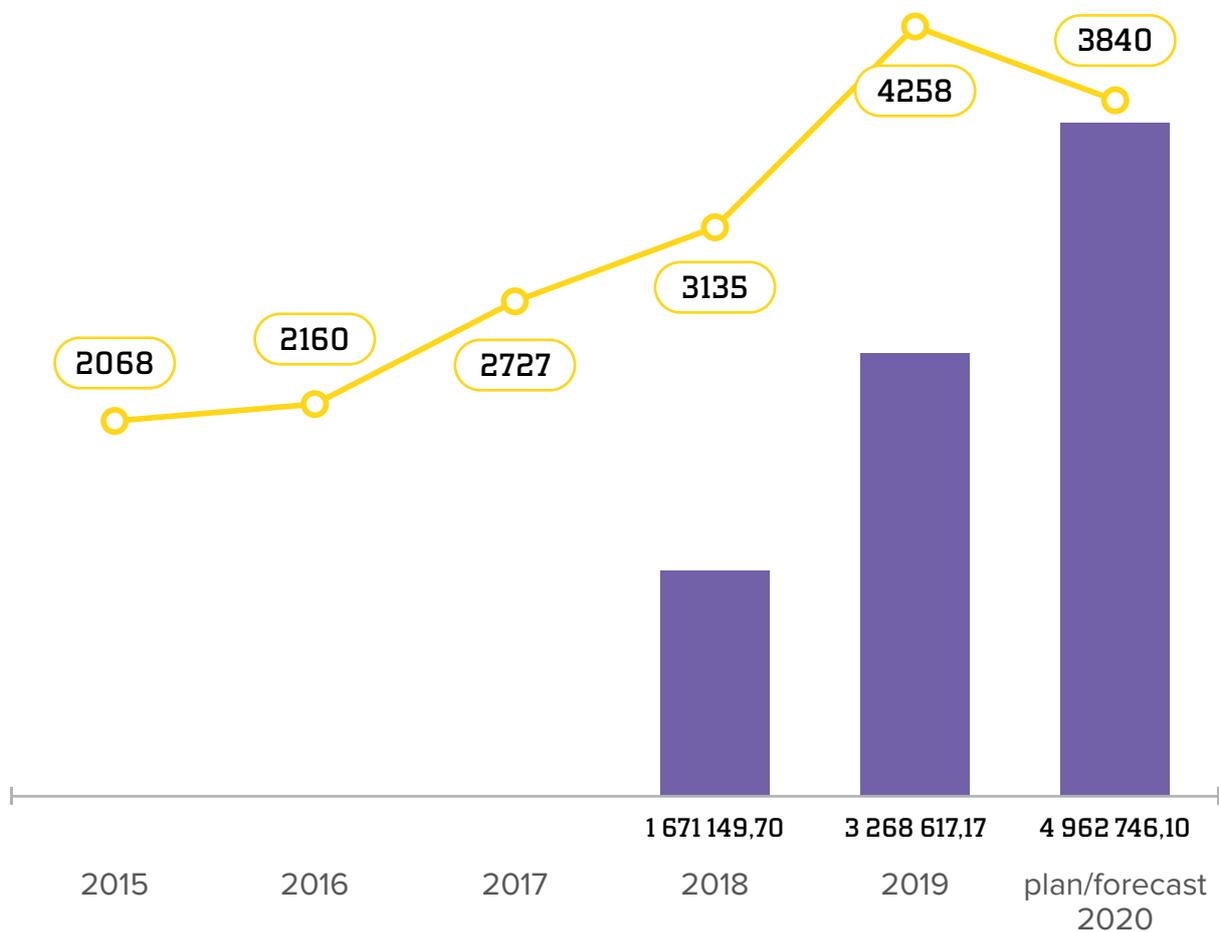
Chart 1. Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry" (2018), Restructuring of the coal industry (2019 –2020), UAH thousand



Data: Ministry of Energy²⁷⁶

Chart 2. Financing of budget program 2401590 (UAH thousand) vs. cost of 1 ton of extracted coal (2015 -2020)

Average cost of 1 ton of coal mined in state-owned mines is **growing steadily**.
There is no correlation with the indicator.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ Amount of cost, UAH/t

Data: Ministry of Energy^{277,278}

277 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

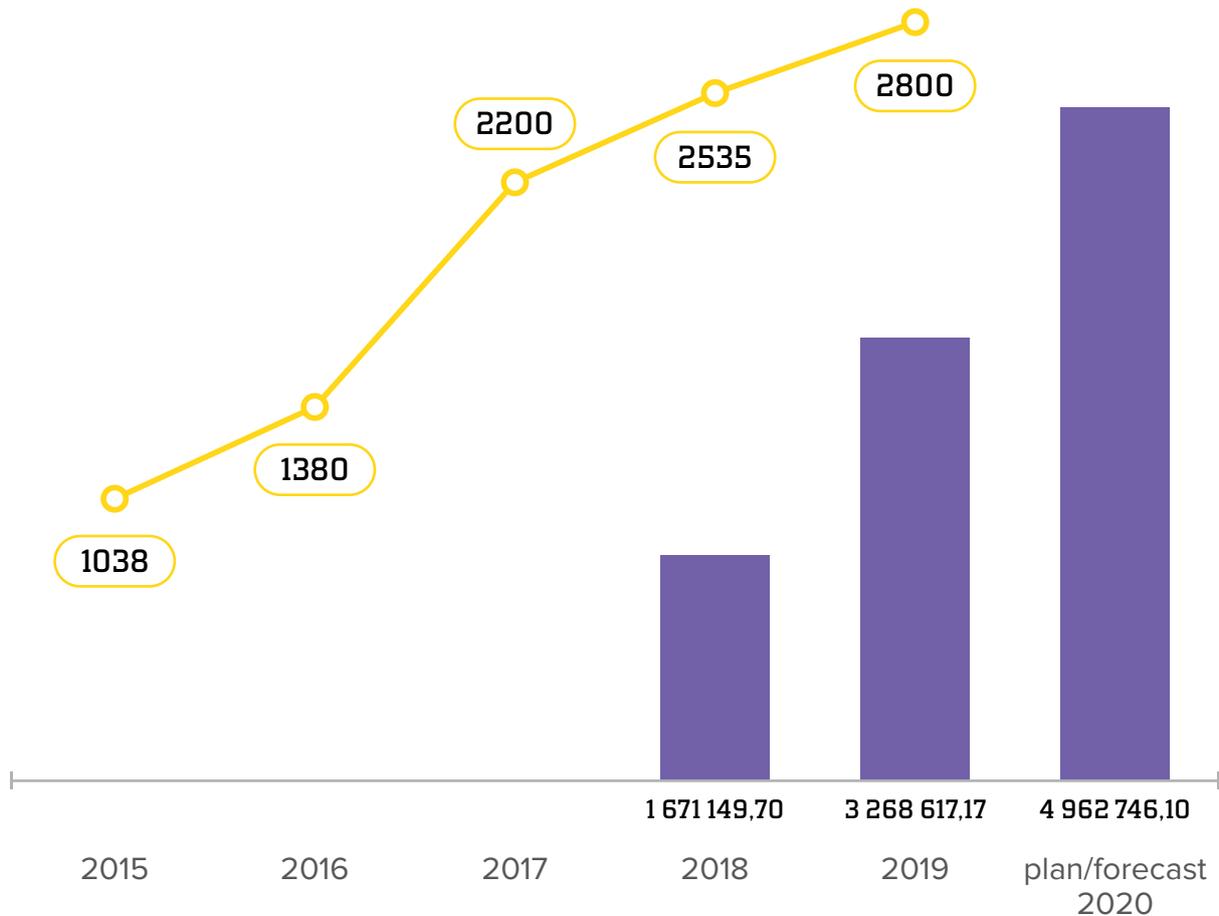
278 Deputy Minister of Energy's Facebook page. URL: <https://www.facebook.com/photo?fbid=2822049804734673&set=pcb.2822050531401267>

Chart 3. Financing of budget program 2401590 (UAH thousand) vs. indicative price of 1 ton of coal (2015–2020)

The indicative price for coal products is **growing steadily**

(set by the Ministry (excluding VAT and transportation))

The continued growth of the indicative price coincided with the growth of the indicative price for coal products. However, this rather indicates that funding under this program did not affect the further increase in coal prices.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ Indicative (marginal) price, UAH/t

Data: Ministry of Energy^{279, 280}

279 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

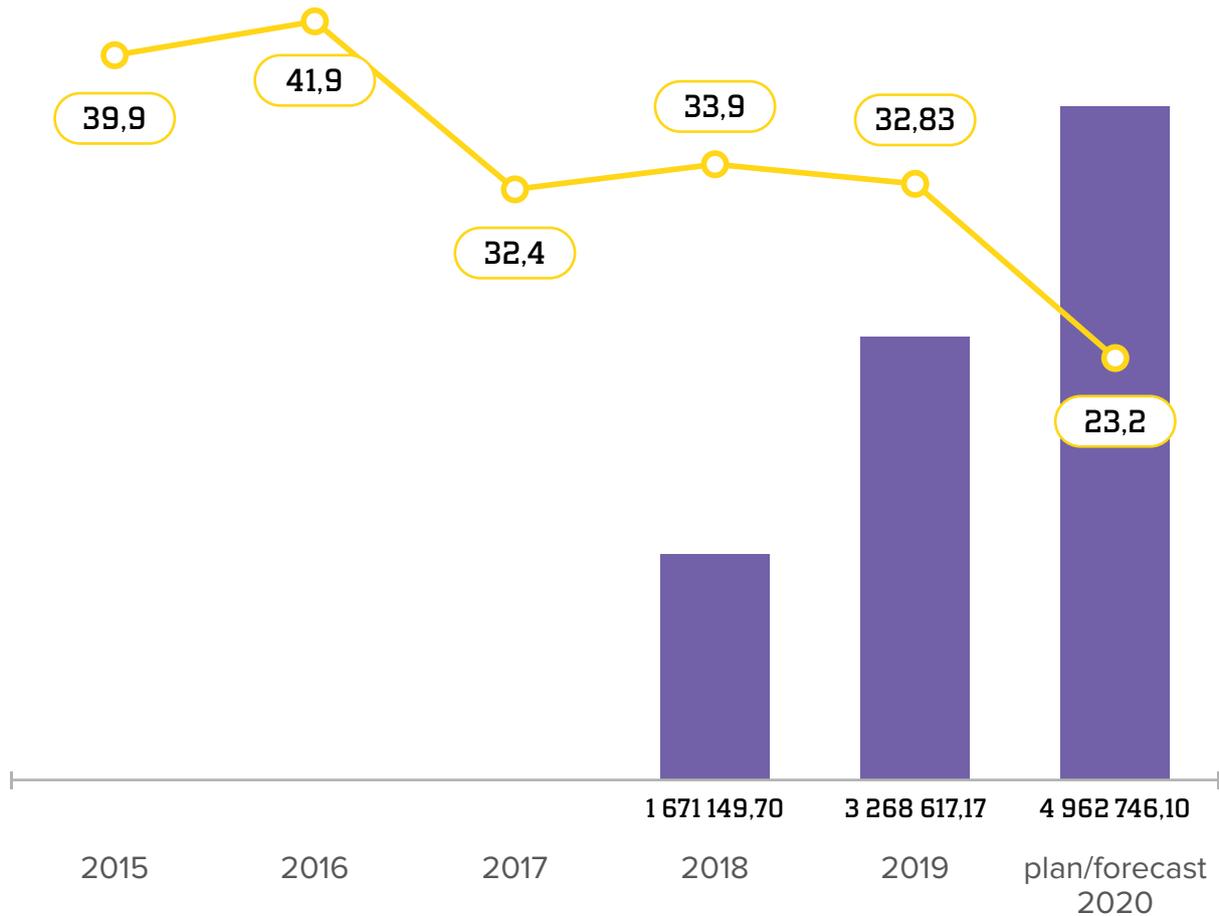
280 Ministry of Energy. Minutes of meetings to determine the marginal price for coal products. URL: <http://mpe.kmu.gov.ua/minugol/control/uk/doccatalog/list?currDir=50043>

Chart 4. Financing of the budget program 2401590 (UAH thousand) vs. volumes* of production (2015-2020)

Coal production by year (2015–019, million tons) is **uneven**.

In 2016 and 2018, there is a slight increase.

There is no correlation with the indicator.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ Volume of coal production, million tons (State Statistics Service)

Data: Ministry of Energy²⁸¹, State Statistics Service²⁸²

*volume of production for 2020 is indicated for 10 months

281 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

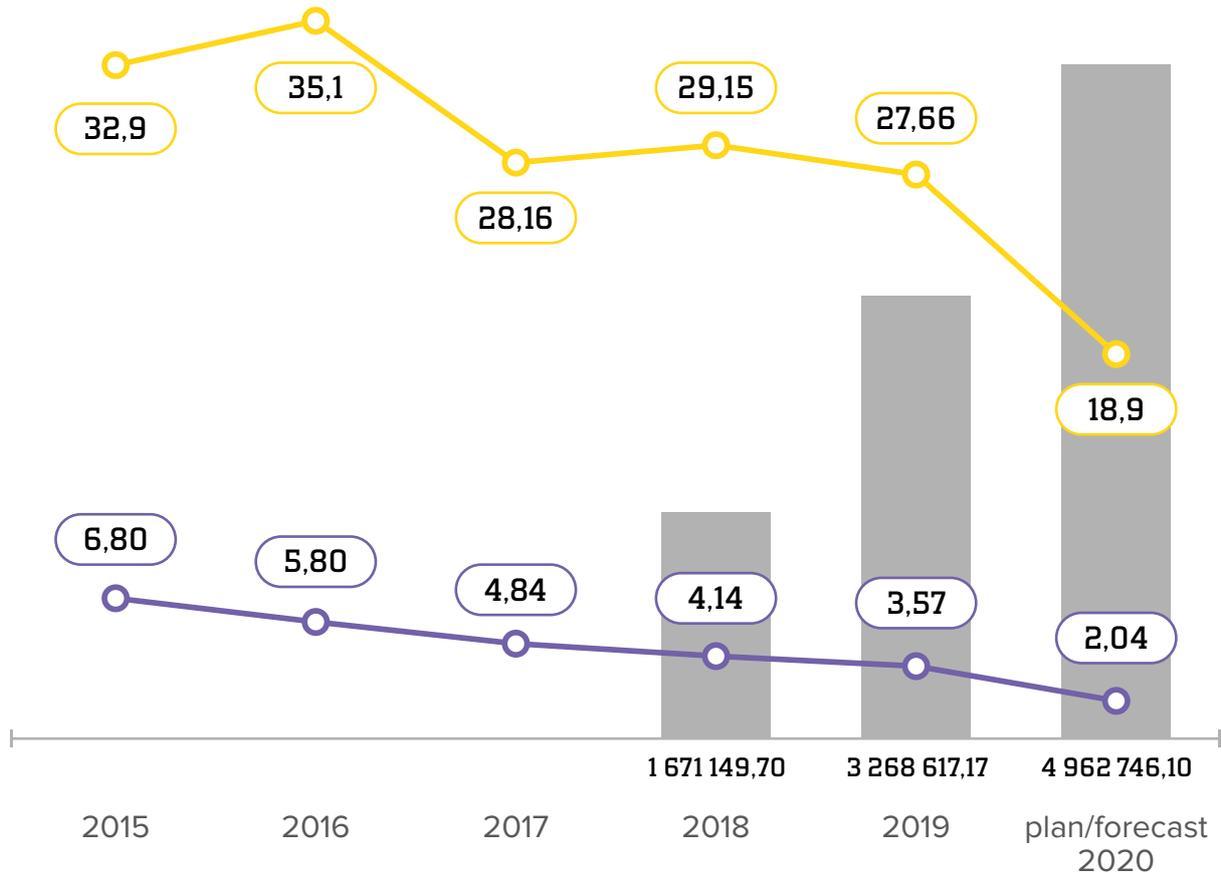
282 State Statistics Service. Production of industrial products by type , 2019–2020. URL: http://www.ukrstat.gov.ua/operativ/operativ2016/pr/vr_rea_ovpp/vr_rea_ovpp_u/arh_vppv_u.html

Chart 5. Financing of budget program 2401590 (UAH thousand) vs. volume* of production in terms of enterprises

Coal production in terms of subordination of enterprises (million tons).

Coal production at coal companies is steadily **declining** while private coal companies show a slight increase in 2016 and 2018.

The growth of funding under the program correlates with the decline in production.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ Production by enterprises subordinated to the Ministry of Energy, million tons

○ Production by private mines, million tons

Data: Ministry of Energy^{283, 284}

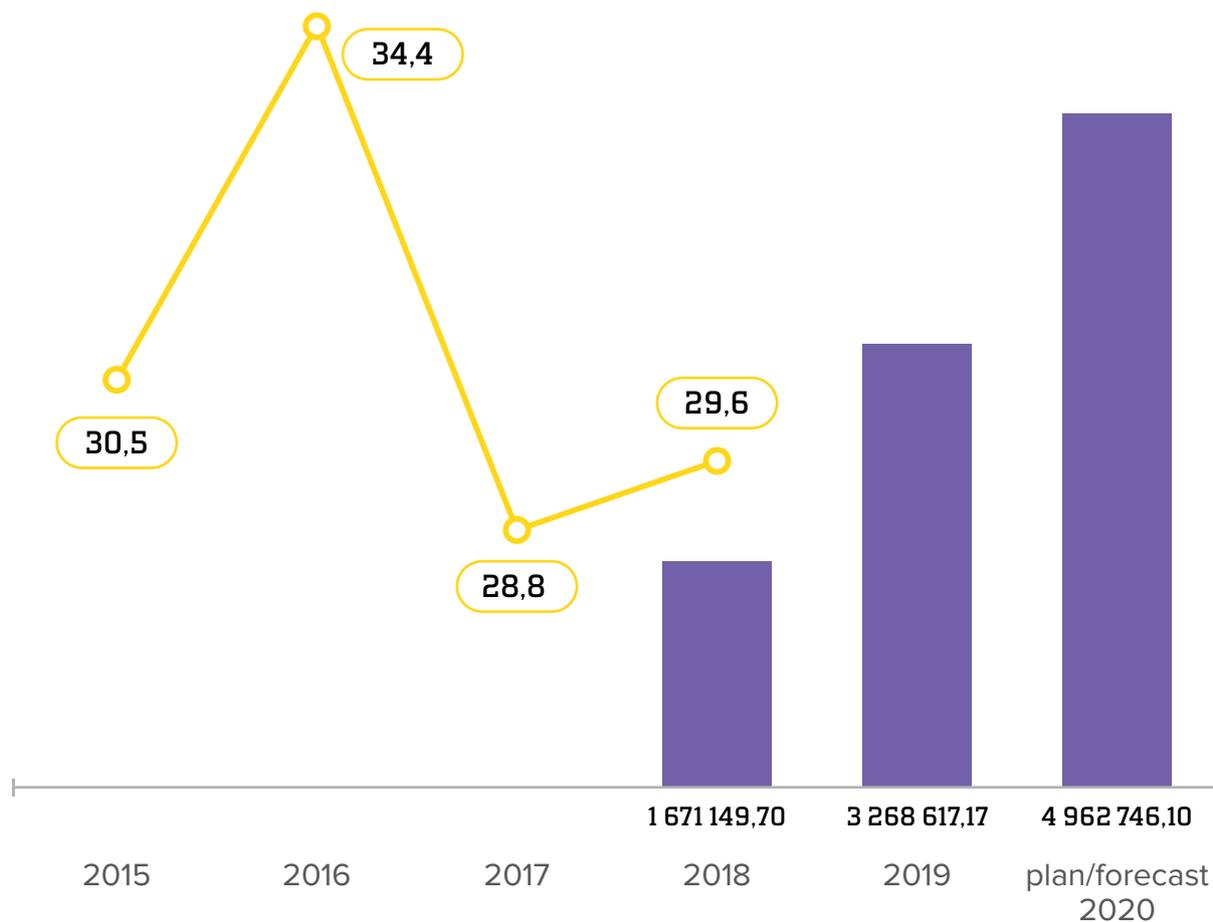
*volume of production for 2020 is indicated for nine months

283 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

284 Ministry of Energy. Information references on the main indicators of development of the fuel and energy sector of Ukraine for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=35081

Chart 6. Financing of budget program 2401590 (UAH thousand) vs. share of coal in the distribution of energy sources in the total supply of primary energy

Share of coal in the distribution of energy sources in the total supply of primary energy is **uneven**. In 2016 and 2018 there is a slight increase, and in 2017– a significant decline. The indicator with the figure have only one year of coincidence, which is not enough for analysis.



- Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)
- Share of coal in the distribution of energy sources in the total supply of primary energy, %

Data: Ministry of Energy²⁸⁵, State Statistics Service²⁸⁶

285 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

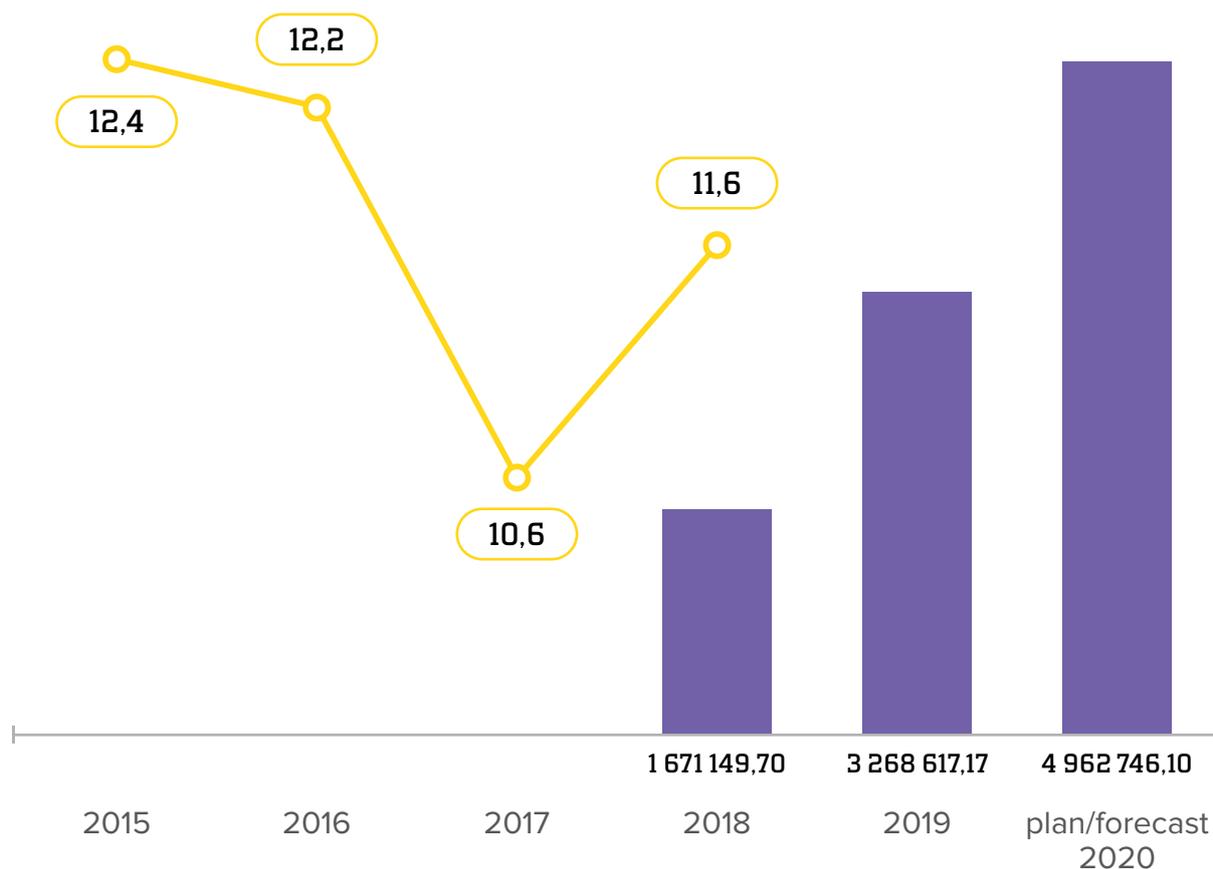
286 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

Chart 7. Financing of budget program 2401590 (UAH thousand) vs. share of coal in the structure of final energy consumption

Share of coal in the structure of final consumption is **uneven**.

There is a decline in 2017 and a slight increase in 2018.

The indicator with the figure have only one year of coincidence, which is not enough for analysis.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ Share of coal in the structure of final energy consumption, %

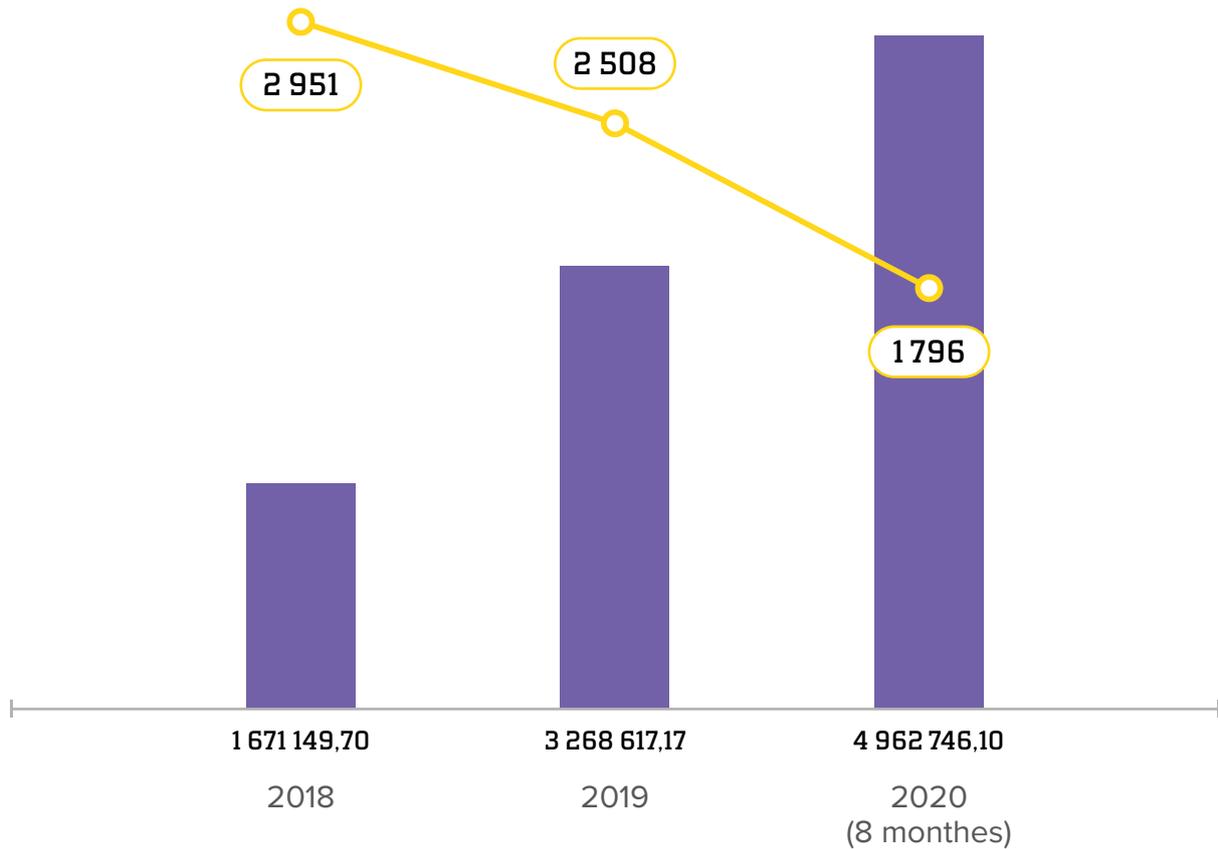
Data: Ministry of Energy²⁸⁷, State Statistics Service²⁸⁸

287 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

288 State Statistics Service. Express issue. Energy Balance of Ukraine 2018. URL: <http://www.ukrstat.gov.ua/express/expr2019/12/175.pdf>

Chart 8. Dynamics of change in volumes* of marketable coal products vs. financing of budget program (UAH thousand)

The dynamics of changes in the volume of sold marketable coal products is **falling steadily**. There is an inverse relationship between the indicators: the increase in funding coincides with a decrease in the volume of marketable coal products.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ volume of coal, sold

Data: Ministry of Energy^{289, 290}

*volume of production for 2020 is indicated for eight months

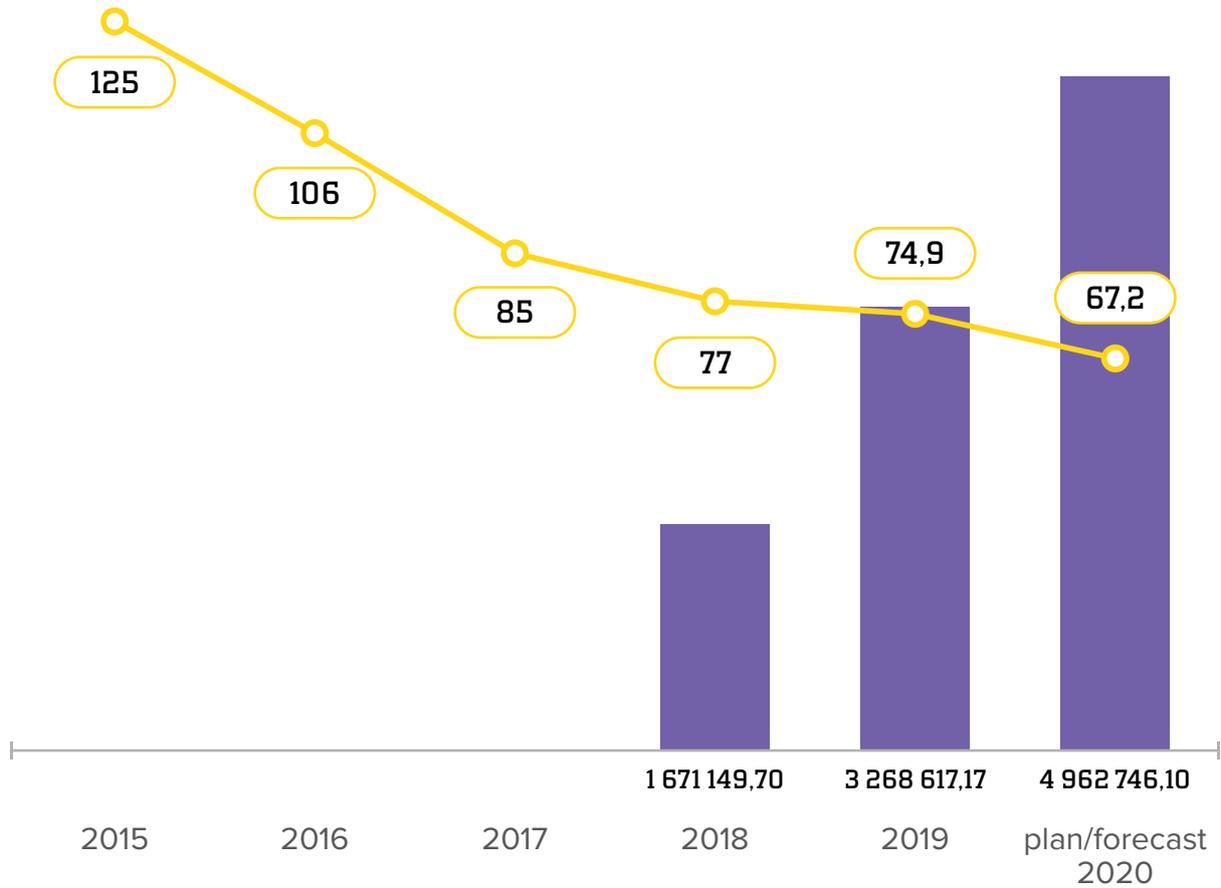
289 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

290 Ministry of Energy. Open Data Portal. Information on marketable coal products. URL: <https://data.gov.ua/dataset/19a376c7-90a3-40d2-a9da-2df2c354646e>

Chart 9. Funding of budget program 2401590 (UAH thousand) vs. number of employees in the coal industry

Number of employees of mining enterprises of all forms of ownership (thousands of people) is **falling sharply**.

The increase in funding under the program is inversely proportional to the decrease in the number of employees in the industry.



- Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)
- Number of employees of mining enterprises of all forms of ownership (thousand people)

Data: Ministry of Energy²⁹¹, State Statistics Service²⁹²

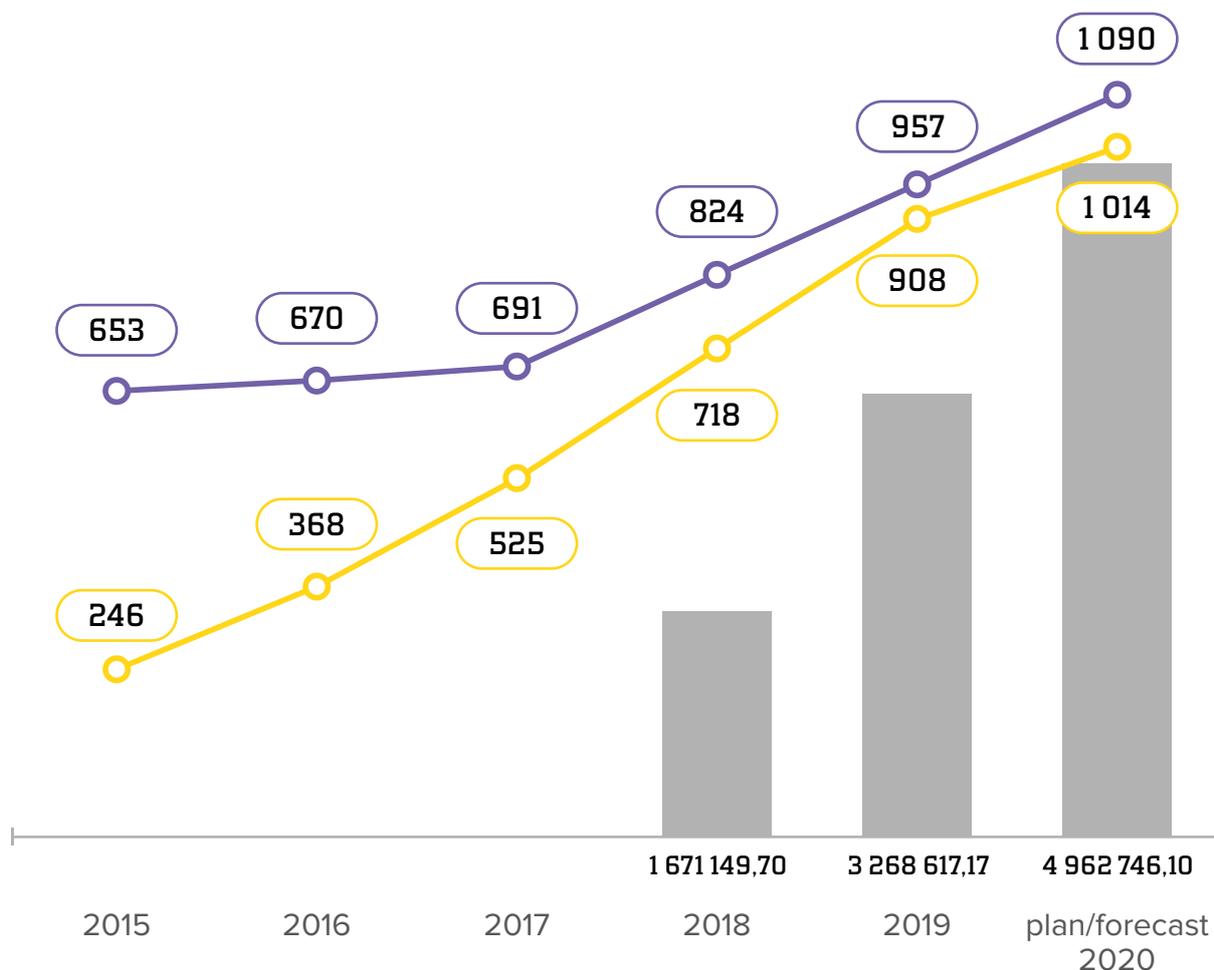
291 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

292 State Statistics Service. Average number of full-time employees by type of economic activity in industry. URL: http://www.ukrstat.gov.ua/operativ/operativ2018/gdn/Sok_pr/Arch_sok_pr_u.htm

Chart 10. Financing of budget program 2401590 (UAH thousand) vs. level of losses and subsidies per one ton of production

Profit/loss of state-owned mines and subsidies per 1 ton of production

Losses and subsidies increase simultaneously with funding under the state program.



● Financing under budget programme Implementation of measures to ensure domestic coal production and further reform of the public sector of the coal industry (2018), Restructuring of the coal industry (2019-2020)

○ Amount of losses, UAH/t

○ Amount of subsidies, UAH/t

Data: Ministry of Energy^{293, 294}

293 Ministry of Energy. Reports on the implementation of passports of budget programmes for 2015-2020. URL: http://mpe.kmu.gov.ua/minugol/control/uk/publish/article?art_id=245345150&cat_id=245001835

294 Official Facebook page of the Ministry of Energy. URL: <https://www.facebook.com/minecoenergy/photos/a.1096844767038465/2872039699518954/?type=3&theater>

ANNEX 5

Indicators of government debt, its servicing and budget deficit

Government and government-guaranteed debt of Ukraine						
Date	as of 31.12.2014	as of 31.12.2015	as of 31.12.2016	as of 31.12.2017	as of 31.12.2018	as of 31.12.2019
Debt amount, UAH bn	1572,18	1929,76	2141,67	2168,63	1998,28	2368,18
Dynamics,%	----	30	18,5	9,9	1,2	-8,5
Dynamics, UAH bn		471,61	357,58	211,92	26,95	-170,35
Growth over the period,%						81%
Growth over the period, UAH bn						897,71

Data: MinfinMedia²⁹⁵

Budget deficit by year						
Year	2015	2106	2017	2018	2019	2020 (plan)
Deficit volume, UAH bn	63,67	83,69	77,55	80,65	89,99	94,28
Deficit volume,% of GDP	2,28%	2,94%	1,60%	1,66%	1,96%	

Data: MinfinMedia²⁹⁶

Government debt service costs by year						
Year	2015	2016	2017	2018	2019 (law)	2020 (plan)
Amount, UAH bn	84,5	95,8	110,5	115,4	145,2	145,2

Data: CMU, MinfinMe²⁹⁷

295 MinfinMedia. Government debt of Ukraine. URL: <https://index.minfin.com.ua/finance/debtgov/2019/>

296 MinfinMedia. Execution of the state budget of Ukraine. URL: <https://index.minfin.com.ua/finance/budget/gov/2015/>

297 Indicators of the draft state budget of Ukraine for 2020. URL: <https://www.kmu.gov.ua/storage/app/sites/1/17-presentation-2019/9.2019/budget%2020/proekt-2020.pdf>

